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ORIGINAL COMMUNICATIONS.

NOTICES OF AGRICULTURAL PUBLICATIONS.
By H. C.

The American Gardener's Magazine; for March. No. III. Conducted by C. M. Hovey and P. B. Hovey, Jr. Boston. Monthly, pp. 40.

This periodical, which we have before noticed, is beautifully printed, and gives delightful indications of the zeal and intelligence with which the subject of gardening, both useful and ornamental, is prosecuted among our Eastern brethren. What is the use of these flowers? This is a question often asked by those who seem to have no sense for any thing but what they can eat or drink; and who estimate the value of any thing by its power of increasing the shining hoards of their idolatry, or of gratifying their sensual appetites. What is the use of these flowers? Can the eye rest upon any thing more beautiful? Can the smell inhale any odor more delicious? Are they not among the fairest of God's works? Can any intelligent and serious mind visit the greenhouse or the garden in the season of their glory, and not admire in silent adoration the splendor and magnificence with which that beneficent Providence, who clothes the flowers of the field, has adorned this earthly habitation of his privileged and favored children. Who can look at the deep and velvet richness of the Dahlia, at the bright colorings of the Carnation and the Marigold, at the variegated splendors of the Pink and Tulip family, at the soft and exquisite tints of the Rose, at the wonderful beauty of the Passion Flower, at the gorgeousness of the Helianthus, at the surpassing glory of the Night-blooming Cereus, and the delicacy and purity of its humble competitor, the common Pond Lily, and not exclaim with emotions of gratitude and elevated devotion, which no words can express,

These are thy glorious works, Parent of Good!
Infinite and inexhaustible source of all life and beauty!

A taste for the simple beauties of nature is one of the richest endowments of the human mind. It cannot be too highly stimulated. It cannot be too much cultivated. It opens sources of pleasures perfectly innocent in their character; which cannot be indulged to any hurtful excess; which are proper to every age, sex, and place; and which, so far from declining, ordinarily gain strength with the progress of life.

Whatever contributes to promote and improve this taste, we welcome with high gratification; and see in publications of this nature a charming source of recreation, an improver of taste and manners; and no mean aid to good morals and enlightened piety.

The present number contains several valuable communications: the first is an extended notice of valuable foreign and native Pears, by S. Downer, a perfect amateur in this matter of fruit, and, as we well know the condition and appearance of his orchards and grounds, for more than a quarter of a century, entirely competent to speak with authority of our native Pears; he says in commendation, "that they have no rigors of climate to contend with, but bear our most severe cold weather without the least injury. They are also in general constant bearers; and, although the flavor of some of the varieties may not be as rich and highly perfumed as those of Flemish origin, still they are so far superior to many foreign kinds, yet old inhabitants of our gardens, that they will be in a few years, as they deserve to be, generally and extensively cultivated."

There are some valuable communications on Fruit Borders and the propagation of the Grape Vine, by experienced gardeners; one on the cultivation of the Egg Plant, by the conductors of the Magazine; and two communications, which deserve particular attention, and which we transfer to our columns, the one on the Planting of an Orchard, by B. V. F., whom, from the initials, we conjecture to be a very competent cultivator; and the other from Samuel Pond, on the cultivation of early Potatoes.

Mr. Pond remarks, in regard to his potatoes, "that they were cut in halves, and planted about six inches apart. I omitted covering them for three or four days, unless frosty weather, as I found that they were apt to rot; but, by leaving them to shrivel for a short time, and then covering them at once, they started much sooner, and made stronger shoots." Now it is a little singular, and confirmatory of a remark we made in a former case, that nothing seemed to be more unsettled than the cultivation of potatoes; that several English writers have attributed in a degree the failure of their potato crops to the circumstance of the sets, after being cut, being allowed to become dry before they were covered.

Mr. Pond makes another statement in this connexion, which is important, and from some facts within our own knowledge, we believe to be well founded. "When they were hoed, I was careful they were hilled up very sparingly; for, when covered too deep, I observed their flavor was inferior to those grown where the soil was more shallow." We know several experienced cultivators, who are entirely opposed to earthing up potatoes; they should be so deeply planted or covered as to prevent the potatoes laying above ground, as such are always spoiled; but the deep burying and high hilling of them sometimes practised, has many obvious disadvantages.

The Magazine likewise contains some useful directions on the cultivation of annual flowers; some charming remarks, dated from New-York, on Rural Scenery, Cottage Gardens, &c.; a review of Loudon's Gardener's Magazine; a notice of the proceedings of the Rensselaer Agricultural Society, and the excellent address of S. Blydenburgh, Esqr., together with some other domestic and foreign notices, and a monthly calendar. The number is embellished with a wood cut of the Bartlett pear.

Detail of a Method adopted in Planting out an Orchard of six Acres with Apple and Pear Trees, in 1830 *and* 1831; *Deep Planting dispensed with.* By B. V. F.

All the varieties of fruits known to the writer, that were deemed important to the wants, or embellishments of the garden or orchard, had been procured previous to the organization of the Massachusetts Horticultural Society. By the formation of this excellent society, however, and the exertions of several of its members, a great number of new and valuable fruits were brought into notice, by its extensive correspondence with other similar societies in Europe, and on the continent. Such as had been tasted, or highly recommended by the committee, were deemed of sufficient value and importance to be added to the selection, which embraced a large number of varieties. A piece of land was decided upon, which was thought the best suited for the growth and future health of the trees, the embellishment of the place, and least liable to be encroached upon by future alterations of improvements upon the farm.

Agreeing with Dr. Johnson, that "with method, almost any thing may be done, and without method, nothing well done," the following system was adopted: A plan of the land was procured; the distances from which each tree was to be placed from the other, each way, was decided upon, which averaged about thirty-three feet; a reference book in connection with the plan of the land was next procured, and on it was designated each variety of tree, in its relative position. The land was then prepared, by taking from its surface all the stones, stumps, trees, shrubs, bushes, &c., all holes or uneven places were filled up, and the ground made as level as possible;

the land was then ploughed deep, with the sods smoothly inverted; it was also harrowed five times lengthwise of the furrows, previous to planting, which caused the soil to be broken up fine, without disturbing the sods.

The trees were selected from the various nurseries around Boston, Salem, New-York, Albany and Philadelphia, amounting to one hundred and eight varieties of apples, and forty-two of pears, — in all two hundred and twenty trees. The trees were all forwarded to me in the fall of 1830, and placed in a trench dug sufficiently deep to cover the roots, and secure them from the frosts and cold of winter, to be ready for planting out in the ensuing spring. Each variety had been noted and labelled while in the trench, in such a manner as to guard against the loss of their names. Previous to setting out the trees in the spring of 1831, in their intended places, the land had been well manured, and harrowed in. Placing the plan on a board with the reference book, the respective place of each tree with their proper distances was easily found with the aid of a surveyor's chain; from one to two inches only of the soil was taken from the sod, and the trees carefully planted,— previously to which, however, they were properly and judiciously pruned, and the roots trimmed of all broken or bruised fragments, if in some instances it could be said they had roots. In this manner the whole number were placed out, and covered with a little free rich mould, not over two inches, puddled with river water and gently trod. This was done in the last week in April, and serious doubts were apprehended whether they would in this manner stand alone. The land was planted between the trees with corn and potatoes, without further ploughing, and an excellent crop was obtained; but two trees died, and only four more required additional soil on their roots; and so far, I have never had trees do better, during twenty years' experience, in the management of an orchard of twenty acres. I have no doubt, had the land been deeply trenched to the depth of one or two feet, and from six to twelve feet in diameter, where each tree was set, they would have done much better; but this is too forbidding to most persons.

I have only aimed in this communication to give you what I consider practicable. In all cases I would impress upon the gardener, orchardist, or farmer, to avoid deep planting, as it is not necessary to preserve trees from high winds, and is absolutely deleterious to their future progress and health. Yours, B. V. F.

Boston, Feb. 10th, 1835.

Observations on the Cultivation of the Early Variety of Potato called Perkins's Seedling. By SAMUEL POND.

GENTLEMEN: Having repeatedly been requested by you to give an account of my success in raising early potatoes, I send you the following brief remarks: The early potatoes that have been exhibited by me for several years in succession at the Hall of the Massachusetts Horticultural Society, so frequently the first in the market, were raised from the variety generally called Perkins's seedling. I first received a small quantity from my friend, Solomon Perkins, Esq., of South Bridgewater. They were the produce of a kind which he raised from the potato balls, a year or two previous. Whether or not he adopted the method pursued in England by many of the most scientific cultivators, of cross impregnation in the parents of this variety, I am not aware; but that this kind is much earlier in coming to maturity, than any other raised about Boston, is too well known to need repetition.

The manner in which I have planted the potato is somewhat different from that generally pursued by most gardeners; the soil where they were grown was deep, and rich. Early in the spring I usually gave the ground a deep ploughing, after which it lay exposed till the time of planting; this was done according to the earliness or lateness of the season—sometimes early in March, and again not till the latter part of the month. When ready for sowing, drills were made three and a half feet apart. The manure that I generally made use of, was very strawy and coarse; I have had good success by using the covering of leaves, sea-weed, &c. taken from strawberry beds in the spring; spreading it in the furrows. The potatoes that I have generally selected for seed were fair, and about the middle size; I prefer such, to those that are large and overgrown. The small ones, however, I invariably refuse, as they do not come forward so early, and never grow vigorously. It is too frequently the practice with many persons, to sell all those large and fair, and plant the small ones remaining on hand. Nothing can be more prejudicial than this, for it soon causes a deterioration in size and quality, which by some is supposed to be a mixture with some other variety. The potatoes were cut in half, and planted about six inches apart. I omitted covering them for three or four days, unless frosty weather, as I found that they were apt to rot; but by leaving them to shrivel for a short time, and then covering them at once, they started much sooner and made stronger shoots, though it is characteristic of this variety never to make strong vines. When they were hoed, I was careful they were hilled up very sparingly, for when covered too deep I observed their flavor was inferior to those grown where the soil was more shallow. I have tried a number of varieties which were reputed to be very early, and also of excellent flavor; but I have never found any of them so early as the Perkins seedling, or any that would so well repay all the trouble bestowed on their cultivation. The size of this variety is large, some that I dug on the 13th of June, 1830, measuring nine and a half inches in circumference, and perfectly ripe. The potatoes are of excellent quality; where this variety has been raised in the country, some distance from the city, it has been preferred to almost every other, exclusive of its earliness, for yielding large and abundant crops.

I have now mostly given up the raising of potatoes, having my ground chiefly occupied with grape vines, &c. Among other varieties, is one I have raised from seed, the fruit of which I have once or twice exhibited to the Massachusetts Horticultural Society. In some future number I hope to give you an account of its origin, together with some observations I have made, in raising several vines from seed of the Isabella, &c. Yours, SAMUEL POND.

Cambridgeport, Feb. 6th, 1835.

The Horticultural Register, and Gardener's Magazine; for March. No. III. Conducted by T. G. Fessenden and J. E. Teschemacher. Boston. Monthly, pp. 40.

We have here a beautiful contemporary and competitor of the foregoing, full of interesting matter, embellished with a handsome colored lithographic engraving of the Cantua Coronopifolia, a plant which the eminent botanist, Mr. Nuttall, pronounces the most splendid and elegant in the United States. A short account is given of it, and a minute of some attempts at its acclimation in these cold regions. "Ten plants," the writer says, "remained entirely exposed during the winter on a perfectly open spot—these are, without exception, flourishing."

The second article contains some curious remarks on raising new varieties of Pinks; and, if the writer would only impregnate the public mind with the Pink mania as strongly as the Dutch were possessed with the Tulip mania, his fortune would be made.

The third article is on the cultivation of Asparagus, by one perfectly competent to give directions, the intelligent manager of the farm connected with the farm-school for indigent boys, on a fertile island in Boston harbor. His extraordinary success is a complete test of the value of his directions; having been able to raise this vegetable nearly two inches in diameter, or between five and six in circumference; having obtained the Society's premium for the largest and best Asparagus; and having also for several years past sold in Quincy market from seventeen to twenty-five cents the bunch, when the same sized bunches of the common kind were selling from six to ten cents.

There is one fact, incidentally mentioned in this account, the whole of which we design to give to our readers, which deserves particular attention, as it certainly has an important bearing on the question, how manure should be applied to our lands; whether near the surface, or deeply buried by the plough. "The bed," he says, "was put down according to the old method, deep trenching, and filling in six inches below the roots with good rotten manure, which I found safely deposited in rather a decomposed state, having laid several years without being disturbed by roots, fibres, worms, or weather." The inquiry arises naturally, whether our manure is not often buried too deep; and whether it be not indispensable that it should be, by occasional stirring of the ground, accessible to the external air, in order that its powers should be brought into action, and its proper benefits realized.

The next communication relates to the accelerating or retarding the maturity of fruits in the open air, which are evidently from an experienced hand. "To delay the maturity of gooseberries and currants, and to preserve the fruit in its natural state until September or October, I should recommend the selection of the trees most abundantly provided with berries; as soon as these have attained their full size, and are just beginning to ripen, lay a clean Russia mat over the tree; gather it together round the stem, about an inch from the ground, and tie it firmly up with a string; the object being to shade it almost entirely from the rays

of the sun, it would perhaps be as well for the first month or six weeks to put on a double mat, removing the upper one time enough for the autumnal sun to penetrate."

The next communication treats on the subject of Horticulture generally, and particularly touches the subjects of grapes, onions, and potatoes. This writer speaks in confirmation of the views which we have before given on the subject of earthing up potatoes. "The remarks," he says, "relative to the worse than useless practice of earthing up potatoes, I know from experience to be well founded, and the same may be made with respect to Indian corn. In the Western States, where the largest crops are produced, earthing is never practised; it is only necessary to destroy weeds by the horse or hand hoe."

The next communication relates to several beautiful indigenous plants. The Azaleas are among the most splendid ornaments in which Flora exhibits herself in her gay season. He acknowledges our indebtedness to the Chinese for some fine species, which have been introduced here from England. There are facts, respecting one species of Azalea, which deserve attention. "Azalea Pontica is a beautiful species with yellow flowers, emitting the most exquisite odor, from Pontus. The juice in the bottom of the flower is said to be poisonous, and communicates its bad properties to the unwholesome honey of that country. The famous honey of Trebizond is spoken of by Xenophon, in his history of the retreat of the ten thousand Greeks, as having produced the effect of temporary madness, or rather drunkenness, on all who eat of it, without, however, causing any serious consequences. Mr. K. E. Abbott, in a letter read before the Zoological Society in London, describes the effects it has on those who eat it, having witnessed precisely that which Xenophon describes; when taken in small quantities, it causes headache and vomiting; and the unhappy individual who has swallowed it, resembles as much as possible a tipsy man; a large dose will completely deprive him of all sense and power of moving for some hours afterwards." It may be deemed a childish suggestion, but to us it seems worth considering, whether it be desirable to introduce such plants into the country, where honey is a most desirable product, and constantly extending; and whether, upon the presumption that they are susceptible of being acclimated, a high responsibility would not rest upon the individual who should attempt to propagate them in the open ground. One of the worst plants which infest our mowing fields in some parts of the country, the ox-eyed daisy, is said to have been imported as an ornamental flower; and the same is said of a plant, the botanical name of which is not now recollected, but vulgarly known by the name of wood-wax, a most diffusive and pernicious weed, which particularly infests the grounds, and where it prevails ruins the pasture lands, in the neighborhood of Salem and Danvers, Mass.

There is a valuable article from a highly esteemed friend of ours, on the Autumnal Marrow Squash, a vegetable which bids fair to eclipse many that have stood high in general estimation. There is a very interesting article on the Leucopagon Richei; and another on Shells, from which we should be glad to quote largely, did our limits admit of it. There are other valuable communications; and some miscellaneous articles by that indefatigable mouser after agricultural *bon bons*, T. G. Fessenden, Doctor in Agriculture; who, though he has grown gray in the service, has lost none of his taste in following the scent of what is instructive and agreeable, and mingling the useful with the sweet.

We should be happy, on our own account, to extend these notices; but we prefer to recommend both these publications to the patronage of those privileged and happy individuals, who have the means, the taste, and the liberality to encourage them.

They will form delightful companions for the parlor; and will serve to awaken, stimulate, and direct a taste, innocent in all its gratifications, and highly improving and elevating to the mind. Natural history, in all its various departments, is particularly the proper study of the young. Minerals, shells, insects, plants, flowers, birds, and the young of all the domestic animals, are what render the country delightful; and furnish sources of recreation and interest to give a brighter splendor even to the happiest hour; and to cheer and illumine time, which would otherwise be dark and solitary. This is a beautiful world in which God has placed us; and the grateful enjoyment of these innocent pleasures, so widely and impartially distributed, is a high duty of religion.

It is but a few days since I passed a delightful evening at the house of a plain and intelligent farmer, surrounded by a virtuous, well educated, and affectionate family. With very humble means, they enjoyed a substantial independence. "Their own hands ministered to their necessities;" and mutual kindness and condescension made every labor light. Without any pretensions to the elegancies and sensual indulgencies of fashion and luxury, they had all the solid comforts; books enough, and plants in abundance; ample food for the body, and the superior gratifications of the mind. Even this humble mansion was adorned with many of the splendors of the greenhouse. There were Myrtles and Daphne Odoras, and Japonicas, and the magnificent Aram Lilly, in all their perfection: and all these, though the exclusive care of some, were objects of common interest and grateful pride to all. What was even far better than all this, but I believe not unaffected nor unaided by the cultivation of this simple taste, since it made their home more dear to them, truth and virtue presided over the whole, and humble and unaffected piety sanctified every duty and blessing. How cheaply, I could not help saying to myself, are the purest pleasures in life to be purchased! How widely and impartially are the means of them, through the Divine beneficence, distributed; and what more favored condition on earth than that in which the fruits of honest labor are enjoyed in grateful peace; and an ardent and cultivated taste for the simple pleasures of nature, and an enthusiastic delight in rural pursuits, are favored and encouraged by the approbation and sympathy of those whom we revere and love; and intermingle themselves with the various and sacred endearments of home.

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The British Farmer's Magazine, Vol. viii., No. 34, for January, 1835.

We have received this periodical from its commencement. It is at present conducted by the Rev. Henry Berry, a distinguished breeder and raiser of the Improved Durham Short-Horn Stock, and who is probably as well informed and competent a judge in this matter as any man now living. The work is beautifully printed, and is usually embellished with portraits of superior animals. Some of its correspondents write with great ability; and it generally furnishes a considerable amount of agricultural intelligence; but a good deal of its matter is purely local, and a considerable portion of its pages has been for years occupied by some prosing and tedious essays on subjects of political economy, British statistics, corn laws, and the currency, which have very little interest for American readers. There is certainly no want of ability on the part of its learned and practical conductor; but we think it might be made much more interesting and useful than it is. We should infer from its pages, however, that agriculture is rather on the decline than the advance in England. The price of wheat is low; and the Improved Stock is in much less demand than formerly. Whether this arises from a general depression of agricultural prices; or from the more extensive diffusion of this stock through the country; or from a lower estimation of the comparative value of these improved animals; or from a distrust of their superior dairy properties; or from the opinion that their superior returns are not an equivalent for the greater expense of rearing and fattening them,—are points upon which we are not sufficiently informed to speak with confidence.

There are in the present number, as there have been in several preceding numbers, much interesting discussion on the recent failures of the Potato crops in England, which appear to have been general, and to have produced great alarm. The failure is in the planting or seed. The tubers or sets do not germinate, and perish in the ground. Various causes have been assigned, such as the sets having been cut too long before planting; the potatoes

having been stowed away in a moist condition and undergone a slight fermentation; the potatoes having been slightly touched with the frost; the sets being destroyed by worms; and an unknown atmospheric influence; but no cause seems to have been as yet named, which would not have operated with as injurious an influence in preceding years; and we confess we have seen as yet no satisfactory solution of the subject. The cultivation indeed of this crop, so common, so universal, and so long practised, and the subject of so many particular and curious experiments, is still matter of so much theory and speculation that nothing seems to be settled in regard to it. This failure however is a very serious and extraordinary fact, and deserves the most careful inquiry, since next to the bread grains no crop is so important.

The number before us contains some valuable communications. We shall not further recur to them at this time, but pass on to some items of agricultural intelligence, which deserve particular attention. At a recent agricultural dinner, where numerous premiums were bestowed, some individuals were honored for the improvements made in the cultivation of small farms, and these are the cases to which we refer.

"Moses Greer, of Corlust, was entitled to the first premium, for best stock, fed upon the smallest quantity of land. It appeared that he had fed his stock of four cows and two calves upon the astonishing small quantity of one acre and two roods of land all summer—being about one rood and four perches for each cow, after allowing for the calves; and had three roods of turnips and one of rape for winter."

"Moses Greer being called on to give an account of his farming, said: My lords and gentlemen, I hold eight acres and three roods of land, which I have now got into the highest condition, and I shall in future be able to keep it so without going to the expense in lime which I have heretofore been at, by reason of the great quantity of manure I make from my increased stock of cattle, consisting of four cows and two calves; and it will surprise you to hear, *that this stock has been fed this last summer, and up to the present time, on clover and vetches, upon the identical same piece of ground which, when formerly in grazing, fed only one cow, and that very poorly.* My land is held partly at 23s., and part at 8s. 3d. per acre; and my rent amounts to £7 14s. 6d. yearly; and I have already sold butter to the amount of £11 4s., clear of all deductions, and have had enough of milk and butter for myself and my family besides. The abundance of manure has enabled me to set as many potatoes as my neighbors, holding the same quantity of land, and I have as much crop too, besides having my turnips likewise. In conclusion, I am satisfied there is no way in which land can be made to produce so much, or in which it can be brought into such heart, as by the soiling system and four-course rotation of crops, from which I expect every year to derive greater advantages; as I may say, I am only just now beginning to feel the benefit arising from it; my land being now all perfectly clean, and not any of it whatever in pasture."

"James Rolsten," another individual who received a premium for the same object, "being next called on, said, I am likewise an advocate for green feeding; I had more clover than fed all the stock I had, although I had more than doubled it; and I was enabled to save three five-fathom cocks of hay, which will leave me all my straw for manure. After cutting my early vetches, I sowed the ground ridge by ridge as I cut it, with rape, which I am now cutting a yard long and giving to my cattle, so that I shall not have to begin to use my turnips for some time; and it will be again fit to cut in April next, when the turnips begin to fail. I have also levelled every useless ditch; and my land, so far from being exhausted by the four-course rotation, is every year becoming better."

Mr. Ingram, of Dumbrony, to whom a premium was awarded for the best cultivated farm, being called on to give an account of his management, said, "I am still of the same opinion as I have formerly expressed, of the benefit to be derived by green crops and house-feeding, which I continue to practice. I find I can thereby increase my stock and my crop also, and have manure for my potatoes and turnips; besides, by this means, I find my land improving under the four-course rotation; and though I am paying according to a late valuation, I am still able to say, as I said last year, I shall be able to make my rent from my dairy."

Thomas Bruce being called on to give an account of his farming, said, "When I came into possession of my farm in 1831, there was no more than about half an acre of potato ground; and this in such a dirty bad condition, that it had to be dug over with a grape, in order to clean it before it could be sown with grain and clover seed. The rest of the land was in a miserable exhausted state, not fit to produce any thing; and I was then possessed of but one cow, and had no meat to feed more; that year I sowed a few turnips upon what manure I had to spare, by employing lime compost for my potatoes; and the next spring, between compost and cow-house manure, I was able to set an acre and a half of potatoes, and half an acre of turnips. That year I was able to house-feed, upon the clover and some vetches, two cows, and had plenty for them all winter. Next spring I had so much manure, that with some assistance from lime compost, I was able to set two acres and a rood of potatoes, and three roods of turnips; and having sowed more clover, I was enabled that season to keep three cows and a horse, which stock I still have, with the addition of a calf, and have fed them this season on five roods of clover, two roods of vetches, and one rood of grazing, which being chiefly on a rocky bottom cannot be broke up; and if an acre was allowed for the keep of the horse, and twenty perches for the calf, this would leave only one rood and four perches for the summer feeding of each cow; and this, with one rood of turnips for each during winter, (which would allow, at 34 tons per acre, near 90 lbs. a day for each for seven months,) would only make 84 perches, or little more than half an English acre for the year's keep; and I have a rood of rape as a stolen crop besides, so that I have plenty of food for them; and my land is improved to such a degree, that there is more than three times the return from it than what it formerly gave, and I shall now be enabled to keep it in heart by the manure made by house-feeding, without any of the expenses for lime which I have been formerly at."

"Mr. Bigger stated, that he held about five Irish acres of land; that he formerly kept but one cow, and had barely food for her. He now kept three and an ass; and part of the year a horse; and after all had clover to spare, to consume which he had bought fourteen young pigs, some of which he still had, and was feeding on potatoes; and had besides sold off the same farm £10 worth of wheat."

The time when the above meeting at Markethill was holden is not mentioned, but was probably in September or October last. The above statements are not only curious, but highly important. The actual capacity or productive power of an acre of land has not yet, as has been said, been ascertained. Six acres of land among the Romans, whose agriculture was extremely imperfect, was deemed ample for the support of a family. Many farmers among us are actually poor and miserable with sixty; perhaps they would be with six hundred. But there is all the difference in the world between good and bad management; between industry and sloth; between frugality and wastefulness; between ignorance and indifference, and discretion and sound judgment. The advantages of soiling or feeding in the house upon green feed are very great to small holders of land and to poor cottagers. On this great agricultural subject we propose at a future time more fully to enter. In the mean time, to such facts as those stated above, and to the interesting account given in the N. Y. Farmer for March, by Horace Hoyt, of Deerfield, of the product of his small farm, we recur with great pleasure as singularly interesting and instructive.

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An Address to the Essex County Agricultural Society, at their Annual Cattle Show, September 25, 1834. By EBENEZER MOSELY, President of the Society.

This is a sensible address. The author, a respectable lawyer in the county, though not we believe a practical farmer, deserves the highest credit for the zeal with which he enters upon the subject; and the efficient aid and patronage which he has for several years given to the intelligent and enterprising society in the county where he resides.

The topics of the address are miscellaneous. The importance of exactness in agricultural experiments and accounts; the valuable improvements in agriculture

which have been effected within a few years; the diffusion of agricultural knowledge and intelligence by means of the press; the improvement of agricultural implements; the utility of a farm school; the cultivation of forest and timber trees; the best season of the year for cutting forest trees, having regard to the durability of the timber, and the cultivation of fruit and ornamental trees, are among the topics touched upon in this address,—all of them interesting and important subjects.

On the diffusion of agricultural information he mentions one fact, deserving notice. "When Mr. Knight, President of the London Horticultural Society, sent his first present of new pears in 1823 to Mr. Lowell, his letter and the list which accompanied it were published in the Massachusetts Agricultural Repository. Within twelve months application was made for these fruits; and scions were actually distributed from the lower part of Maine to Cincinnati in Ohio."

Of the importance of cutting trees at a particular period or aspect of the moon, he speaks at considerable length; though he is not disposed to believe in this lunar influence. We think these notions are mere moonshine, and we should regard him as a lunatic, if he did rely upon them. Whether timber trees should be cut when the sap is down, or when it is flowing vigorously, is a question of great importance, and here he gives some interesting facts. He states that trees, where they have been cut, will renew their growth in about forty or fifty years. For timber of a large size this may be the case; for fuel, they may be cut to advantage once in about twenty years. With respect to a scarcity of fuel becoming general throughout the country, no great alarm need be excited. Our resources as yet are immense; and notwithstanding the increase of population, wood, we believe, is not much dearer in our cities, when the depreciated value of money is taken into the account, than it was thirty years ago. Some districts of country, inaccessible by water, may suffer; but they will see, and already do see, the necessity of greater frugality in the use of fuel, and of making some provision for its restoration. But the increased attention paid to comfort in the construction of our houses; the improvement of fire-places; the introduction of stoves; and the extended use and inexhaustible supplies of mineral coals, together with the various facilities of transportation by canals and railroads, must do much to dispel any fear of immediate scarcity. Still we deem the cultivation of forest trees, both for timber and fuel, as well as for ornamental purposes, along our roads and about our houses, to which Mr. Mosely refers, a matter of great importance, and deserving not only the consideration of individual farmers, but the particular attention of agricultural societies as subjects of premium. H. C.

We subjoin the following extracts from the address, for the benefit of our readers.

* * It is greatly to be desired, that our agricultural brethren would be more particular in keeping exact records of the cultivation of their respective crops, and would communicate the result to some agricultural journal for the benefit of the public. It would be like that charity which is doubly blessed. It would be a useful and agreeable exercise to him who should make that record, and it would be highly beneficial to those who should receive it. It would awaken a general spirit of inquiry among our agriculturists, which would lead to more certainty of success in their several crops.

There is no employment, which appears so well adapted to the health and pleasure of man, as agriculture. That merciful Being, who early pronounced that, in the sweat of his brow, he should eat bread all the days of his life, has in great kindness so conformed his nature that this judgment is the great source of his enjoyment. Active and regular employment seems peculiarly adapted to the nature of man, whether he stands in the high places of civilized life, or roams through the forest. It is by this continued exercise and labor, that the body, or, as expressed by the poet, "this harp of thousand strings, is kept in tune so long." Observe the man of luxury and wealth, who avoids labor and exercise, and indulges himself in continual rest. You will probably find him the victim of disease, his sluggish mind dwelling upon the pains, either real or imaginary, of his sluggish body. Is there a day laborer, who enjoys health of body and mind, who would exchange situations with such a voluptuary. Would he not instinctively say, with the wise men, Go to the ant, thou sluggard—consider her ways, and be wise.

The improvement which has been made within a few years in the art of agriculture and in agricultural implements, must be highly gratifying to every farmer. Who, forty years ago, would have thought it possible to raise one hundred bushels of corn on one acre of ground? Yet now, it is no uncommon case for a farmer to raise a much greater crop. This improvement must be attributed in a great measure to the influence of the press. If we go back but half a century, I believe we shall find no periodical publication either in Europe or America which treated exclusively on the subject of agriculture. The consequence was, that in those districts where particular branches of husbandry were the most successfully and judiciously treated, the knowledge remained with them, unless, perhaps, slowly communicated from one to another, as accident or opportunity should offer. But when journals, devoted to this art, began to be put in circulation, containing the experience of intelligent, learned and practical men, the improvement in particular districts became very generally disseminated. It is true, indeed, that in many cases these publications were coldly and reluctantly received, from a false notion, that book learning, especially when it contradicted the opinion they had derived from tradition, must be very visionary. The light of truth has in a great measure removed these errors, and a new era has commenced upon the subject. The knowledge which has been derived from science and experience in one quarter of the world is communicated by the press to all others, and that which was claimed as private property is now communicated for the benefit of all. One fact will strikingly illustrate this subject. When Mr. Knight, president of the London Horticultural Society, sent his first present of new pears in 1823 to Mr. Lowell, his letter and the list which accompanied it were published in the Massachusetts Agricultural Repository. Within twelve months, application was made for these fruits, and scions were actually distributed from the lower part of Maine to Cincinnati in Ohio.

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Those persons who have been accustomed to follow the same course of husbandry, which their fathers and generations before them adopted, have favored the opinion, that very little is to be learned upon this subject. It is difficult to make them comprehend, that this art involves principles as extensive and as hard to be understood as any other art which can occupy the attention of men. They have never turned their attention to the great improvements in agricultural implements. The plough which their fathers used did very well, and they think it still does very well. They have never considered that agriculture is an important branch of Natural Philosophy, nor have they ever attempted to understand the nature of different soils, the economy of manures, and the adaptation of particular kinds of manure to particular soils, the regular and systematic rotation of crops, improved modes of tillage, the different breeds of cattle, sheep, and swine, and the different kinds and qualities of fruit and fruit trees. Yet these are subjects which the skilful farmer will deem it necessary to understand, and he will devote his attention to them, as to the study of an important and difficult science.

It is not many years since an application was made to the Legislature of this State, by the Trustees of Dummer Academy, in this county, for aid in founding a professorship of scientific and practical agriculture, as connected with the institution. Perhaps no institution in the state could be found more favorable for this object. There is a farm connected with this institution, and under the direction of the trustees, consisting of several hundred acres, and embracing a great variety of soil. This institution is exceedingly well adapted for an agricultural school, and with but small aid from the legislature might be rendered highly useful to the community. Young gentlemen might here come and study agriculture as a science, and be prepared to follow it through life as an honorable profession. This application was deemed of so much importance, that a committee from the Massachusetts Agricultural Society came to the farm, examined it, and made a favorable report to the legislature, recommending that the petition of the trustees should be granted. It is to be regretted, that the application did not meet with success; yet I am not without hope that the legislature will feel the importance of the subject, and will extend its aid to establish some institution for learning scientific and practical agriculture. Shall schools and colleges be deemed important to diffuse general knowledge, shall military and naval academies have the fostering hand of government to impart knowledge in their departments, shall the sciences and fine arts have teachers for their objects, and agriculture alone receive no aid? This art or science, which is more important to the prosperity, wealth, and happiness of our nation than all others! The loss of which for one year would probably exceed in value, and produce more poverty and distress, than the loss of all our manufactures and commerce!

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The act of 1819, giving a bounty to agricultural societies, contains a provision which shows the watchful care of the legislature over the interests of the common

wealth. It is made the duty of the several societies to offer annually such premiums and encouragement for the raising and preserving oaks, and other forest trees, in such manner and upon such terms as to their discretion shall seem best adapted to increase and perpetuate an adequate supply of ship timber within this commonwealth.

* * * * *

Viewing this as an interesting subject for our consideration, and growing of more and more importance every year, I shall venture to submit to you some remarks upon our forests and fruit trees, although at the hazard of being very uninteresting. Our wood lots are highly valuable for fuel, fences, and ships. The price of wood for fuel is already one of the heaviest articles of expense in every family. Our commonwealth, stretching along the sea shore, indented with bays, creeks, and navigable rivers, has in past time found much employment in ship building, and, if it be true, as has been asserted, that a ship of the line requires all the good wood which can be usually found on fifty acres of well wooded land, our prospect is alarming. From present appearances this business must soon be abandoned from the want of suitable timber. A good wood lot is, even now, considered among our most valuable lands. What then must be its value in future time, if we go on in our present wasteful use of fuel? Shall we have less need of it in time to come for our fires, fences, buildings, and ships. Certainly, every year is rapidly reducing the quantity of wood, and shall we adopt the strange policy of the man, who would do nothing for posterity because posterity had done nothing for him! Our ancestors, when they landed on these shores, found themselves surrounded by dense, impenetrable forests, where now are our cities, towns, villages, and fields smiling with plenty; and they bestowed their greatest labor to subdue those impenetrable forests, and convert them to cultivated fields. There was then no need of economy. The very ashes were of more value than the wood, and some of the remaining fire-places show with what improvident profusion they supplied their fires.

In order to increase our wood lots we must direct our attention to two objects. First, to preserve those which now remain, and second, to raise new plantations. I believe there has been a difference of opinion among our farmers as to the best course of proceeding to preserve our forests. Some recommend selecting out the old and decaying trees for fuel, letting the younger growth stand, while others advise cutting clean in the winter season, or when the sap is down. The latter is probably the most general and perhaps the better opinion. It is recommended to cut as near the ground as possible, in order that the new shoots may be thrown out near the roots. Particular care should be taken to exclude cattle, to prevent their cropping the young shoots. It is supposed the trees will attain a sufficient growth in about forty or fifty years to cut again.

For the purpose of increasing our wood lots, it will be necessary to turn our attention to raising new plantations. In this country very few attempts have been made to produce wood lots by planting, but in Europe I believe it is very common. Some recommend planting the seed in nurseries, and then transplanting the young trees to the place in the plantation where they are to stand; while others prefer planting the seed in the place where it is intended the tree should grow, because, in this way, it is said the young tree receives no check by shortening the tap root, or taking off the fibrous roots. In either case the tree should be set out, or the seeds planted, much thicker than it is intended the trees should grow for timber, for in this way they will grow much straighter and more thrifty, and the thinnings will in a few years furnish not only fuel, but hoop poles and wood for other purposes. The plantation will grow much more readily if the ground be in a fine tilth for cultivation. It may then be marked out by cross furrows, at four feet distance from each other, and the seeds planted or the young tree set out at the intersections of the furrows. The ground may be planted for several years between these rows, with potatoes or some tillage crop, and the cultivation greatly benefit the young trees. Cattle must be carefully excluded at all seasons of the year.

The following experiment, by the Hon. John Wells, of Boston, who has made some valuable communications to the public upon this as well as upon other subjects, will show the necessity of putting the acorn, or any seed of the forest tree, for raising a plantation, into cultivated ground. About ten years since, he took about six acres of old pasture land, and proceeded gradually to plant thickly over the whole lot several bushels of acorns, chesnuts, &c., in the following manner: A tongue of earth was raised by the hoe, and an acorn or other nut put beneath at a depth of two or three inches; then the sod was pressed down with the fork or hoe, to prevent a loss by birds, squirrels, &c., and all stock was kept from the enclosure. Mr. Wells says, the trees have to be sure vegetated, but they seem quite unthrifty in the tough grass-sward, with which they feebly contend, and there appears at present little room for much expectation from this mode.

Forest trees are exceedingly tender in their early growth, and the land in which they are planted must be well prepared, and for a long time cultivated, in order to raise trees from the seed.

In England, as in this country, the management of forest trees and wood lots is left wholly to the discretion of their respective owners, with this exception, that in England the government claim a right to certain large timber for purposes of naval architecture. In France, the whole forests of the kingdom, whether royal domains or private property, are under the direction of commissioners of the forests, and no individual can cut down an acre of his wood without permission of government. Such is the character of the laws, and the rigid system of inspection, that it is calculated the forests of France, and the supplies of wood from them, will never diminish, and that there will always be sufficient for domestic consumption, for fuel, as well as for civil and naval architecture. Even during the revolution, when life, property, and the dearest rights of man were disregarded and involved in one general ruin, when havoc and plunder sought every thing which time and habit had rendered valuable, her great and extensive forests were sacredly preserved. England is abundantly supplied with mineral coal for domestic purposes, and for her extensive manufactories, while in France, wood is used almost exclusively. It is, therefore, highly important that she should have laws, and those strictly enforced, for preserving her forests and woods. Nor is it less important in our own country. I could wish all our forests and wood lots under the control of commissioners like those of France—although it might operate severely upon private rights. But, as in many other cases, these private rights might be yielded up for the public good. I would require every public highway in the commonwealth to be lined, on each side, at the distance of two or three rods, with the elm, button-wood, maple, ash, oak, or some other forest tree. This would not only afford a delightful shade for the traveller, but it would produce a highly valuable growth of wood. I have often felt a surprise that our farmers should not more generally cultivate trees, about their houses, for shade and ornament. This might be done with no expense, but a few hours of labor, and it would render their habitations more pleasant, and give to them a great additional value, should they have occasion to sell, or should the estate descend to their heirs. These trees would be a living monument to their memories, while that raised by the hand of affection may have crumbled to the dust. With what feelings of veneration do we often see the majestic elm, spreading its mighty branches, and throwing its cooling shade around the humble mansion of some former personage. Such trees carry with them lessons of instruction to generations which never heard the voice of him who planted them.

Perhaps no country in the world is so highly favored in the beauty, variety, and utility of her forest trees, as the United States; or perhaps I should say North America. Monsieur Michaux, a French gentleman, of much science, and a distinguished botanist, made a voyage to this country in 1802, for the purpose of examining our forests; and in 1806 he was employed by the French government to undertake another voyage, under the orders of the administration of French forests. He devoted several years to obtain a knowledge of the properties, variety, and utility of various sorts, as applied to the arts. He states, that the number of sorts of American forest trees, whose growth amounts to thirty feet at least, and of which he has given a description, amounts to 137; of which ninety-two are employed in the arts. In France there are only thirty-seven which grow to that size, of which eighteen only are found in the forests, and seven only of these are employed in civil and maritime architecture.

There is one subject connected with forest trees, upon which there appears to be a diversity of opinion, and which I wish to present to your consideration, that you may compare it with your own experience. It is, as to the best time to fell timber, with a view to its durability. To me, it is a matter of much surprise, that the opinions of practical men are not uniform and settled upon this subject—a subject so important to almost every man in society, and particularly to those who have any interest in civil and naval architecture. The subject appears to be as unsettled in Europe as in this country, or rather the prevailing opinion in both countries is probably erroneous. It appears to be the more general opinion in Europe and in this country, and the practice has conformed to this opinion, to fell timber in the winter, or while the sap is down; or to be more precisely accurate, in the month of February, in the old of the moon. In France, by a royal ordinance of the year 1669, the time of felling naval timber was fixed from the first of October to the fifteenth of April, in the wane of the moon. Napoleon, having adopted the opinion that ships built of timber felled at the moment of vegetation, must be liable to rapid decay, and require immediate repairs, from the effects of the fermentation of the sap in those pieces which had not been felled in the proper season, issued a circu-

lar order to the commissioners of the forests, that the time for felling naval timber should be abridged, and that it should be in the decline of the moon, from the first of November to the fifteenth of March. Commodore Porter, of the American Navy, in a communication which appeared in the American Farmer, gives it as his opinion, that the most proper season for felling timber, with a view to its durability, is in the winter, when the sap has ceased to circulate. He is of opinion that the moon has a powerful influence upon timber, as well as upon many other things.

Notwithstanding this powerful array of authority for felling timber in the winter, while the sap is down, to increase its durability, many experiments have been made which seem to establish the fact that timber cut when the sap is in most active circulation, is most durable. Mr. Benjamin Poor, the owner or occupant of Indian Hill Farm, in this county, in a communication to Gorham Parsons, Esq. published in the Massachusetts Agricultural Repository, states the following fact as within his own knowledge and observation. His grandfather, in the fall of the year 1812, selected two white oak trees, size, situation, general appearance as to age and health, and the soil, as near alike as possible. In the month of March following, in the old of the moon, one tree was cut, the timber carried to the mill and sawed into suitable timber and scantling for an ox cart, and put up to season in the open air. The middle of June the other tree was cut, carried to mill, and sawed as the former, suitable for an ox wagon, and put up in the open air to season, and treated in every respect like that cut in March. In the fall of the year, both parcels of timber were housed, and in the spring following an ox cart was made from one, and an ox wagon was made from the other parcel, both painted, and the work alike in all respects. They were used principally for hauling stone, and if there was any difference in the service to which they were used, it was that the June timber had the hardest. They were both housed in winter, and commonly remained out in summer. Mr. Poor says, at this time (1821) the one made of timber cut in March is very much decayed, the sides defective, much bruised, and a general appearance of decay; while that made of timber cut in June is perfectly sound, has not given way nor started in the joints, or in any respect appears half as much worn as the other, although it has had the hardest service.

The late Hon. Timothy Pickering, the first President of our Society, whose zeal and intelligence, connected with his long experience and great industry, give to his opinions much value, appears to have been of opinion, that the best time for felling timber trees for durability, is, when the sap is vigorously flowing. He states the following fact, as communicated to him by Joseph Cooper, Esq., of New-Jersey, a practical farmer. Mr. Cooper's farm lay upon the banks of the Delaware, nearly opposite Philadelphia, and was exposed to the ravages of the British army while occupying that city. Pressed for fuel, his fences first fell a prey to their necessities, and in the month of May, 1778, they cut down a quantity of his white oak trees; but circumstances requiring their sudden evacuation of the city, his fallen timber was saved. This he split into posts and rails. The ensuing winter, in the old of the moon, in February, he felled an additional quantity of his white oaks, and split them into posts and rails to carry on his fencing. It is now, said Mr. Cooper, twenty-two years since the fences made of the May fallen timber were put up, and they are yet sound; whereas, those made of trees felled in February were rotting in about twelve years. Mr. Pickering treats the notion, that the moon has an influence upon timber or vegetation, as visionary.

I have before said, that it is not yet well settled whether the moon has any influence upon vegetation. It is, indeed, a singular fact, that this subject should remain unsettled even to the present day; and yet it is so far unsettled, that probably one half of our farmers, who have occasion to sow a field of turnips, would prefer the old of the moon. I have never had any belief in the supposed influence of the moon, and have generally adopted the opinion, that industry and sunshine will do very well without any aid from the moon. I have generally ranked this opinion of the moon's influence, with those superstitions which would give importance to the circumstance, whether the moon was first seen over the right or left shoulder, or whether an enterprise would be successful commenced on Friday. And yet some men of great science and experience are firm in the belief of its influence.

It would be an amusing exercise to collect the various opinions and facts, both ancient and modern, upon this subject, but it would far exceed the limits of this discourse. I will however remark, that the ancients paid great regard to the age of the moon in the felling of their timber. Their rules appear to have been to fell timber in the wane of the moon, or four days after the new moon; some say let it be the last quarter. Pliny orders it to be in the very article of the change, which happening in the last of the winter solstice, the timber, he says, will be immortal. Columella says, from the twentieth to the twenty-eighth day. Cato, four days after the full. Vegetius, from the fifteenth to the twenty-fifth for ship timber, but never in the increase: trees then much abound with moisture, the only source of putrefaction.

Commodore Porter, we have seen, is of the opinion that timber should be felled in the old of the moon to give it durability, and he expressly says that its influence is nearly, if not quite as powerful as the sun. The commissioners of the French forests require such timber to be cut in the old of the moon, and such has been the standing regulation from the year 1669.

Mr. Staples, of Turner, in the County of Oxford, State of Maine, in a communication in the New-England Farmer, describes himself as above the age of seventy years, and during the greater part of that time has been a practical farmer. He removed to this place at the age of twenty-two, when the country was new, and was among the five first settlers, and has given particular attention to the moon's influence on timber, vegetation, &c. He says, that it is a truth, that the moon operates upon the earth, and every thing which grows upon it, much more powerfully than is generally imagined. It is also true, that the effects of her operation vary regularly, as she passes through her orbit or monthly course. Timber, cut in the wane of the moon, will be much more durable than it would be if cut between the new and the full moon. Her operations are so great and so different in the various parts of her orbit, that by cutting one tree three hours before the new moon, and another of the same kind six hours afterwards, and preserving them one year, a very striking difference in the soundness of them will be discovered. If I had known, says Mr. Staples, as much at the age of twenty-two years, as I now do, relative to this subject, I am satisfied it would have benefitted me more than a thousand dollars, particularly in clearing hard wood land and in getting durable timber for buildings of all kinds, and for sleds, carts, &c.

He says, I have found by experience that fruit trees set out in the wane of the moon, and particularly on the last day of the last quarter, are more likely to live and be flourishing, than when set out at any other time. I have proved by experiments, for ten years in succession, that an apple tree limb or graft, cut off in the month of May, about three hours before the moon changes, and carefully set out, will grow and do well.

Another writer says, that in the months of May, June, and July, oak trees, in the new of the moon, will readily part with the bark, when, in the old of the same moon, the bark will adhere closely.

Such are some of the opinions and facts to support the affirmative of this question; but opposed to these opinions may probably be found most of the scientific and practical agriculturists of the present day. Doctor Dean and Colonel Pickering, men of great experience, practical knowledge and accurate observation, consider these notions of the moon's influence as visionary. There are certain operations of the moon upon the earth, which are obvious and admitted by all. It affords us light by night, it turns the earth in some degree from its elliptical orbit, it occasions a small oscillation in the earth's axis, it causes the ebbing and flowing of the sea, and a like effect upon the atmosphere. But heat, which is the cause of vegetation, has never yet been discovered in the collected rays of light from the moon. Experiments, made at the Royal Observatory in Paris, have proved, that the light of the moon, condensed by a powerful lens, had no effect whatever in altering chemical products, though very sensibly and easily affected by the light of the sun. Another fact is, that the most opposite weather in different parts take place at the same instant of time, and of course under the same phases of the moon.

It was probably from opinions prevalent in the days of Solomon of certain influences in the heavens, that he was led to make the mild rebuke: He that observeth the wind shall not sow, and he that regardeth the clouds shall not reap.

I now come to a topic, which, although more immediately connected with the department of horticulture, is still within the objects of this society. I refer to the cultivation of fruit trees. We are told that man, in his primeval state, as he came fresh from the hands of his creator, and arrayed in purity and innocence, was placed in a garden of fruits, to dress and to till it. This employment, so congenial to the purity and perfection of his original character, has lost nothing of its favorable influence in leading the mind to virtue and happiness.

It has often been a mater of surprise to me, that the attention of our farmers has been so little directed to the cultivation of fruits, and, especially, when we consider that they are strongly urged to a consideration of this subject, by every motive of profit, health, and pleasure. There is nothing which a farmer can raise upon his farm with so little trouble and so great profit as valuable fruit trees; and yet nothing is more rare than to see a farm-house with a variety of valuable fruit trees attached to it. The most that we usually find is perhaps a few old apple trees, which show the marks of long neglect, and perhaps one or two decaying pear trees, bearing hard and crabbed

fruit. With but a few hours' labor every year, a great variety of the best fruits may be obtained. Our climate is exceedingly favorable for the cultivation of apples, pears, cherries and plums. These are trees usually of long life. The apple tree will continue in bearing fifty or sixty years. But a few years since there was an apple tree in the garden of the Wyllys family in Hartford, Connecticut, which was sent out by the old Secretary, before the middle of the seventeenth century. The pear tree is usually of longer life than the apple. The old Endicott pear tree in Danvers was planted by Gov. Endicott in 1630, and is more than two hundred years old. Although much decayed it still bears fruit. The cherry and plum tree often live to a great age. It is therefore not one of the least considerations in planting these trees, that we are rendering a valuable service to generations which are coming after us.

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Fruit is also one of the greatest luxuries which God, in his providence, has given to man. Have you not been at the festive board loaded with all the dainties which wealth and taste could collect from this and other climes? And have you not seen that those ripened in our own sunshine have been always preferred? What foreign fruit can compare with the mellow blushing apple, the luscious pear, and the peach which fills the room with its fragrance? And yet all these we may have with very little labor and very little expense. If I am told that accidents often attend the cultivation of fruit, which disappoint our expectations, I would inquire what crop of the farmer is not liable to accident? Frost and drought, which often injure fruit, are no less injurious to tillage crops.

Ripe fruits also contribute greatly to health. I have seldom known a family of children, accustomed to the daily use of ripe fruit, who have much occasion for a physician. It prevents, in both old and young, dysenteries, cholics, and various other ills which flesh is heir to, and gives the form of health and strength so essential to our happiness. This is a cheap medicine, much cheaper than that presented by a physician, which we must pay dearly for, and his visit beside.

Every farmer should be well acquainted with the operations of grafting and budding. It is an art attended with no difficulty, and may be learned in one hour. A little practice will enable any person to perform the operations with great rapidity and success. I deem a knowledge of these simple arts so important, that I would make the knowledge of them an essential part of a young gentleman's education.

The peach is probably the most short lived tree of all our fruit trees, but it is renewed with very little trouble. Plant a peach stone in the place where you want a tree to grow, and it is very sure to come up and flourish. The better way is, however, to have a nursery. Take a few feet of ground in the garden, and in the fall plant a number of stones. At two years' growth the tree may be budded with fruit which you know to be excellent, and in the fall of the year the tree may be transplanted to the place where you wish it to stand. Let it have a southern aspect, at the south side of the house or barn, or on the south side of a hill, and it will for several years produce fruit abundantly, which will amply repay all your labor and trouble. When it decays, let it be renewed by another. In the same manner other fruit trees may be produced.

It is a happy circumstance for New-England, that agriculture is considered among her most honorable and useful employments. Of those who have taken a deep and lively interest in its success, and given the result of their experience for the benefit of the public, we name with no common emotion Timothy Pickering, our late President, who was distinguished, not less for his rank in the army of the revolution and in the councils of the nation, than for his unwearied and successful devotion to agriculture. His mortal remains now repose in the bosom of that earth, which, when living, he so industriously cultivated, while his spirit walks abroad to cheer and encourage and elevate his agricultural brethren. But we are not left alone. There remain to us living examples of all that is honorable, beneficent, manly, in Lowell, Wells, Prince, Parsons, Perkins, and many others. These men, with ample fortunes, cultivated minds, and refined taste, have given a character to agricultural pursuits which they did not possess before. They have not only raised two blades of grass, where one only grew before, but they have made the bramble give place to the luxuriant fruit tree. In the society of such men for fellow laborers, who would not be proud to be a farmer? To the clergy of our society we are much indebted for countenance and aid. Colman and Perry not only "point to heaven and lead the way," but they teach to strew this thorny path of earth with fruits and flowers. With such company our employment will be honorable, and circumstances may render it profitable.

Agricultural Tour. By H. C. To the Editor of the New-York Farmer.

Three years ago I made an excursion on horseback of about one hundred miles, as well for purposes of inquiry as health; and, as is my habit, made a few short and hasty notes and observations of what presented itself as worthy of remark, but without any view whatever of presenting them to the public eye; if, however, you should deem them either amusing or instructive, you will feel at liberty to make what use of them you think proper. I should extremely regret to give offence, even to the most sensitive delicacy, by referring to individuals or places by name, but as my remarks are conceived in no ill will, I shall hope in their candor to find an apology, if one is needed,

Respectfully yours, H. C.

February 23, 1835.

1832, Aug. 6. Left Meadowbanks in the morning on an agricultural tour of a week, with a view to such observations as might occur in a hasty passage through the country; and desirous of gathering, from any sources which might come in my way, such information as might be turned to a practical account at home.

The actual inspection of the condition, soil, aspect, cultivation, management, and improvements of different parts of the country, and of the agricultural operations, conduct, stock, utensils, crops, and success of different intelligent and practical farmers, is among the best sources of instruction to which we can apply. Without a doubt the public would be greatly benefitted by the interchange of such visits. Agricultural improvements are of slow advancement. Farmers are a class of men reluctant to make alterations in their accustomed practices, and to admit, still less to adopt, the improvements of their neighbors. Utensils of improved construction, and improvements in established modes of husbandry, of obvious and unquestionable advantage, will be adopted and used in extensive districts for years, without being adopted, or scarcely known, in towns or districts immediately contiguous. Agricultural societies, and publications circulated in the form of tracts and newspapers, have contributed much to the diffusion of agricultural information, and to extend the practice and advantages of the improved husbandry of some individuals and districts, to other individuals and through other countries; yet the progress of agricultural improvement is comparatively slow. Mere theoretical speculation in agriculture is commonly worse than useless. Experiment,—exact, well conducted, continued, and repeated experiment,—is the only infallible instructor. Written accounts are often exaggerated through ignorance, or design, or vanity, or self-deception. Personal inspection presents the most satisfactory, as well as the most interesting and useful means of information. The particular and detailed examination of the management and crops of individual farms, are always more interesting and instructive than more general accounts and speculations.

My journey commenced with the ascent of the Shelburn hills, where every advantage is taken of the nature of the ground, the road following the winding course of a stream which pours from the summit. The ascent is somewhat laborious; but the eastern view from the top of the hill, embracing a wide extent of forest, the verdant and highly cultivated meadows in the valley of the Green river, and the beautiful village of Greenfield lying in the valley, with its white houses, and its spires glittering among the trees, is a full compensation for the labor and fatigue of the ascent.

The first farm met with on the hill is the residence of Wm. Wells, Esq., and presents an appearance of substantial comfort and independence. His fences and buildings were in neat and good order, and his crops of oats, potatoes, and corn, of excellent promise. The farm of Mr. Wells was first cleared by his father, and for many years produced abundant crops of excellent wheat. The cultivation was discontinued on account of the ravages of the Hessian fly, and success became more doubtful. The present proprietor has always continued to raise it to a certain extent; and of late, though on a small scale, his crops have been fine and abundant. His farm must, in the main, be considered as a grazing farm, and after the supplies of his family, his surplus produce is applied to the fattening of swine, sheep, and cattle. Comparatively few sheep are kept in Shelburn for their wool; but many wethers are fattened in the winter for the Brighton market. The dairy husbandry is carried to some extent; but their main dependence is on pasturage, the raising of young cattle, and the stall-feeding of

sheep. The general aspect of Shelburn is uneven and hilly, consisting of extensive swells of land and some lofty and rocky summits. Some of the original forests are still remaining, but a large proportion of the land is cleared, and furnishes excellent pasturage. The town shows indications of thrift, and industrious and skilful management; the dwellings appear comfortable and in good repair; and every where you behold examples of that substantial comfort and true independence common among the yeomanry of many parts of our favored country, and laying the strongest claims upon their contentment and gratitude. Indeed, as far as the external comforts of life are concerned, if they only knew their blessings, they would find but little more to ask. Themselves the possessors in fee simple of the soil which they cultivate, enjoying a healthful climate, with no more labor required of them than is essential and conducive to health of body and mind, with comfortable habitations, fuel in abundance, bread enough, meat enough, butter and cheese, eggs and poultry enough, vegetables and fruit enough; clothing respectable, and suited to the season, and oftentimes gathered from their own herds, and wrought by their own hands; their labor, both within and without doors, performed by their own families, surrounded with kind and sympathising neighbors, and unfettered by many of the artificial distinctions of refined life; enjoying the blessings of free schools, the advantages of social libraries, the full exercise of the rights of conscience, and the liberties of religious worship; and in the perfect possession of all the rights of citizens of a free government, with the career of improvement for them and their children open before them; and a perfect security in the enjoyment of the fruits of their honest industry; it is difficult to imagine any condition in life for the class of people who are placed in it, if they had contented, grateful, and pious hearts to estimate their blessings, more independent, more privileged, or more enviable.

It is often remarked, that the inhabitants of these hill towns are in general more thrifty and prosperous than the farmers in the Connecticut valley, who cultivate the rich alluvions on the banks of the river. This is only to be accounted for on the supposition that the fattening of cattle in the stall is less profitable than the raising and pasturage of stock. The expenses of arable husbandry are always great; and the raising of grain is always attended with greater or less risk. The river farmers have in general but little pasturage attached to their farms. They are chiefly occupied in the raising of hay and grain, which they consume in fattening their cattle in the winter. The market for beef is uncertain and fluctuating; and in hopes of obtaining better prices, they are often induced to keep their cattle beyond their power of supporting them to advantage; the results sometimes severely disappoint their expectations, and not unfrequently their animals are sold at a serious loss. It is not so with the raising of young stock by pasturage, and by coarse foddering in winter. There is little labor and care attending them; and the owner can avail himself of the most favorable time of diposing of them, as their growth is an equivalent for their keeping. The hill farmers have likewise a source of profit in their dairies, which, with good pasturage and skilful management, afford in butter and cheese, and the raising of swine, a reasonable profit. A farmer in an adjoining town to this, and on one of the roughest and most hilly parts of the country, and with a dairy managed almost exclusively by his own family, admitted that his cash sales the last year were more than twelve hundred dollars.

As we descend the hills we soon strike the Deerfield river at a place called the Falls, where the stream passes over a rocky bed, and in the course of a few rods makes a rapid and considerable descent, and is soon lost among the hills, which are quite steep as they approach the river, and not suited for cultivation. At Shelburn Falls are several mills and manufactories, with the usual accompaniments of stores and taverns. Excellent scythes are made here, and there is a large establishment for the manufacture of snaiths, which are made by machinery and highly approved. Admittance to the factory is prohibited, and the process by which they are formed with great exactness after the same model is attempted to be kept secret. Here likewise is founded a manual labor school for both sexes; connected with the establishment is a large farm; the pupils are numerous; the young men are employed on the farm, and the girls either in household duties, or the manufacture of buttons which they cover. The expenses of education are surprisingly low. It is a sort of opposition line, and they "carry as cheap as possible."

(To be continued.)

Grape Vines in Pots—Progress of Gardening—Vines in Green-Houses—Identifying Fruit—Destruction of Insects—Gladiolus Natalensis—Heating Green-Houses—Early Vegetables. By S. F. [For the New-York Farmer and American Gardener's Magazine.]

The February or second number of the Messrs. Hovey's Gardener's Magazine has come to hand. I cannot refrain from again calling attention to a periodical which I deem worthy of a liberal support. It is very much on the plan of Loudon's Magazine; and the editors, like Mr. L., appear to be very much at home in conducting their work. The present is embellished with a colored lithographic drawing of a splendid gladiolus natalensis, raised by Mr. S. Sweetzer, besides well executed wood engravings.

I subjoin a few abridged notices and extracts.

Grape Vines in Pots.—Most of the information in this article will be found at pages 164, 209, of the last volume of the New-York Farmer. Preference is given to growing vines in pots from single eyes.

The following embraces the particulars of cultivation pursued by the Messrs. Hovey.

March 9th, 1833.—Shoots of the Black Hamburgh and White Chasselas grapes were selected, and formed into cuttings of single eyes or buds; this operation was performed by cutting off the wood in a sloping direction, one inch above the eye or bud, and two inches below. By this method of raising vines from single eyes, they produce a greater number of fibrous roots, which enables them to absorb an abundant supply of nourishment from the soil, and their growth becomes proportionably vigorous and strong. It is of importance, in selecting shoots for the purpose of forming the cuttings, to make choice of wood that is well ripened, short-jointed, sound, and with very little pith; such wood is more likely to be obtained from the middle or lower parts of branches of healthy vines, than near the extremities.

After the cuttings were prepared, pots of three or four inches diameter were filled with a mixture of one third light sandy loam, and two-thirds leaf soil, in which the cuttings were inserted in a slanting position, and each eye covered about half an inch in depth, finishing off with a gentle watering, and the pots plunged to their rims in a moderate hot-bed.

At the commencement, strict attention was paid to the heat of the bed, as it frequently happens, if the heat is too powerful, the eyes will shoot up before any roots have protruded, and are very liable to be destroyed, either by a powerful sunshine, or from too damp an atmosphere.

The cuttings were watered very sparingly until the buds appeared above the surface of the soil; air was freely admitted during the day, and the bed covered at night, in order to preserve an equal temperature as possible.

March 24,—being fifteen days from the time the cuttings were put in the pots, they made their appearance above the surface, were shaded from the sun during the middle of the day, until they were well furnished with roots and the leaves began to expand; water was then regularly supplied, and plenty of air allowed, to prevent them from being drawn up weak.

By the 9th of May the vines had grown to the height of from eight to twelve inches, and were shifted into pots of six inches in diameter, making use of the same kind of soil as the cuttings were put in, at the commencement. In repotting such young vines, they should be handled with great care, as the points of the roots, or spongioles, are exceedingly tender, and susceptible of injury; the leading shoots should also be carefully protected, and all laterals removed as soon as they appear. The success depends much upon keeping up the temperature of the bed, which should rather increase than decrease as the vines acquire strength; and, as the least check is very injurious in this early stage of their growth, should the heat begin to decline, it must be renewed by linings; for it is an essential point, that they be continually kept in a vigorous and rapidly growing state, the object in view being to produce one strong shoot for bearing fruit the following year.

June 25th,—the vines were from two to three feet in height, and were again repotted into pots fourteen inches in diameter, and fifteen inches in depth; the soil used

was composed of equal parts of light loam and leaf soil, with the addition of about an eighth part of the whole of very rotten manure. After potting they were removed into the green-house, and placed over the front flue; the shoots were trained upward in a direction corresponding with the slope of the roof, and ten inches from the glass; water was supplied frequently, and occasionally liquid manure, till the wood began to ripen; all lateral shoots were stopped just above the first bud, which bud was retained to prevent the main eyes from starting prematurely.

July 27th,—the vines had attained the length of six feet; and, as a sufficient length of wood was now obtained, each shoot was stopped, by pinching off the point; this caused one or two of the uppermost eyes to start, and these were also stopped when they had grown two or three joints. By thus continually stopping the upper laterals, as often as they were produced, the rapid flow of sap upward was checked, and the shoots acquired greater strength and size. When the wood had become perfectly ripened, each vine was cut to the length of five feet, and all the laterals, which had been suffered to grow during summer in order to preserve the main eyes, were cut in close, leaving a straight, clean shoot.

In November, the vines were placed under the stage of the greenhouse, where they remained till the first week in March following, and were then placed in their former situation.

March 15th, 1834,—the buds began to open, and by the 30th, the fruit-buds were distinctly visible; two to four bunches appearing from every eye, with the exception of two or three of the lowest. When the fruit was fairly developed, the shoots were stopped at the second bud above the upper bunch; and *one* bunch only was retained on each shoot, with the exception of two vines; on these, *two* bunches to each shoot were allowed to remain, for the purpose of ascertaining, more fully, to what extent vines in pots could support and ripen a crop of fruit. The two last mentioned vines were Black Hamburghs. One of them produced twenty-eight, and the other thirty bunches; but it ultimately proved to be too large a number for them to ripen perfectly. Water was plentifully supplied, as often as the surface of the soil in the pots became dry, and the foliage was syringed frequently. No other care was necessary throughout the season, than occasionally to tie up the bearing shoots, to prevent them from being broken by the weight of the fruit.

Five of the vines, viz. three White Chasselas and two Hamburghs, produced from eighteen to twenty-five bunches each, or one hundred and six collectively; and on the 30th of July, the Chasselas grapes were perfectly ripe; the Hamburghs had changed color, but did not arrive at maturity till about the 25th of August. Although from fourteen to twenty bunches are considered by the English cultivators as a good crop for one vine, yet, from the experience which we have had, thus far, in the culture of vines in pots, we have no doubt but that thirty bunches and upwards, of the small growing kinds, as the Sweetwater, Muscadine, &c., may be obtained from each vine, equal in excellence to those grown by any other method. Mr. Stafford, one of the most successful cultivators, says, that all the most delicate sorts are superior, when grown in pots, to any he ever saw grown on the rafters; and he further states, that he has often proved, that a pot placed in the house, on the 1st of January, and the same species trained up the rafter, and subjected to the same heat,—the former will ripen its fruit at least a month earlier than the latter.

Future Progress of Gardening in America.—This article is by Mr. Grant Thorburn. He considers improvement in gardening to depend on the reciprocal operations of demand and production—and that ignorance among the middling classes, of the proper mode of cooking vegetables, especially of dressing salads, is a retarding cause; and another is the neglect, on the part of those who keep gardens, to require vegetables for the table to be of the very best quality.

Vines in Green-Houses.—This article is from the pen of J. W. Russell. He approves of propagating from a single eye or bud, with two or three inches of the preceeding year's wood. This method gives more abundant roots, shorter joints, and fruit the second year.

Difficulty of Identifying the Varieties of Fruit.—R. Manning, Esq. attributes more accuracy to English than to French gardeners—recommends all sellers and purchasers to make the catalogues of the London Horticultural Society the standard of reference, as the only means of insuring accuracy.

Destruction of Insects.—Mr. B. H. Ives recommends clearing fruit trees of eggs of insects before they hatch, in the spring. They are readily found by close examination. Picking them off by the hand from low limbs, and by attaching burning straw to a pole from the higher ones. The Hon. T. Pickering's spiral brush is highly recommended to destroy caterpillars.

Gladiolus Natalensis.—Mr. Sweetser considers this to be one the most beautiful that have been introduced into this country. It is easy and simple of cultivation, and is propagated very fast. He thinks it will soon become common, not only in the greenhouses, but in the parterre and garden.

Heating Green-houses by Hot Water.—In some general observations in reference to their calls at gardens and nurseries, the Editors say,—

"One thing the severity of the weather has certainly proved, that the largest and loftiest greenhouses or conservatories in our vicinity may be kept at a proper temperature—and that, too, with less trouble to the gardener, and less expense to the owner, heated upon the hot water system, than by the old method of brick flues. We were astonished to find there was so much difference in the quality of the heat; the air in the houses heat by hot water being mild, bland, and humid, while those heated by brick flues were dry and uncongenial."

Vegetables.—Lettuces and radishes were (January 13) nearly ready for pulling in the foreing houses of Wm. Pratt, Esq. They were in the Boston market, January 20th.

Frozen Potatoes.—Large quantities have been frozen in Maine, and thrown into the Boston market at reduced prices. Good potatoes were selling on the 20th January at 33 to 80 cents per bushel.

Machine for extracting Stumps—Improved Plough, &c. By J. D. W. [For the New-York Farmer.]

Vergennes, 18th Feb., 1835.

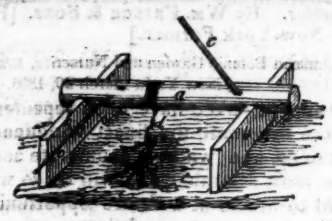
D. K. Minor:

Sir,—Three or four days since, I received a December No. and the title page and index for the VII. Vol. of the New-York Farmer; and, as you desire, shall continue the work another year, in hopes that both the post office and publishing office will hereafter be better managed—the only reason I had for declining to take the work at all was, the chagrin I felt at being repeatedly disappointed in the receipt of it, and finding myself destitute of a part of the volume when I wished to get it bound. You will please to accept my thanks for your liberal offer, and hope there will be no occasion for plending its conditions at the end of the year; and in return for your liberality, I will, if you will permit me, ship to your address a plough of a new pattern, on the first opening of the navigation, which, although *not patented*, I think will be found to possess some good qualities over and above those in general use; and, if "*not received*," or not approved, "no charge will be made"—so please say if you will have it upon such terms. You have repeatedly requested your subscribers to write for the "Farmer;" and, if the following account of a mode which I have practised with success for extracting stumps, possesses any novelty, you may, if you please, give it a place when you have nothing more valuable.

I am not, and fear I never shall be, a regular farmer, having been bred to another and very different business; but about five years ago, I came into the possession of a farm, some parts of which, and particularly a part which was immediately overlooked from the house, was covered with pine stumps and thistles; and as neither one nor the other were agreeable objects to look upon, I set about eradicating them at the earliest convenient opportunity.

My method for clearing the ground from stumps was, to select a dry time; and after digging away a little of the earth about them with a spade, to set them on fire, and burn away the body of the stump, so as to separate the roots, which were then *drawn* out one at a time, by two men, with the very simple apparatus generally known by the name of the "Spanish windlass." This rested upon two sticks of light pine timber, about 6 by 24 inches, and 7 feet long, lying about 6 feet apart, one on each side of the root to be drawn, something in this way (see annexed cut.)

a is the roller of the windlass, with four holes of two inches diameter, bored



right angles through it, near the ends; the roller itself about 7 inches diameter.

b, *b*, the timbers upon which the roller works.

c, *c*, two levers by which the roller is turned.

d, a strong ox chain, which takes hold of the root, *e*, and winds round the roller as it is turned by the levers, *b*, *b*, which may be two common crow-bars.

And this simple apparatus, the whole of which, with the exception of the chain and crow-bars, which every farmer ought to have, will cost less than a dollar, will be found very effective in removing stumps of even the largest size. The thistles I have nearly eradicated by ploughing, hoeing, and pulling them up, manuring the ground, and sowing it with grass seed; the grass appeared to outgrow the thistles, and was mowed before the latter came to maturity, but after they were sufficiently grown to be killed by cutting. I was sorry, however, last season, to see that the white daisy was spreading over the field. Pray do you know of any method of destroying that? or does it belong to the "race of immortals?"

I am your very obedient serv't,
J. D. W.

We thank J. D. W. for his offer of the plough, and also for his communication—and shall not decline them, should he even repeat the offer.—[D. K. M.]

German Geese. By Jos. B. Miller. [For the New-York Farmer.]

Sir—Seeing the German Geese highly recommended in your excellent publication, the New-York Farmer, raised by Mr. Geo. Sisson, of Rhode Island, imported from Bremen, I take the liberty to request you to inform me what a pair can be obtained for, and also whether or not you can get a pair for me, delivered at your office. If you can get them so, it will do; I will send to your office for them as soon as possible. Please to write as soon as you can ascertain the facts. Also, what you can get a pair of Berkshire Pigs for, at four weeks old, of the full blood.

If you can get a few seeds of the Lima Squash, please to enclose them in the letter, stating the charge, and pay shall be sent to you. Twelve seeds will answer, or a less number.

Yours respectfully,
Joseph B. Miller.

Pluckamin Post Office, Somerset County, New-Jersey, Feb. 23, 1835.

The Bremen, or German Geese, may be had of I. I. Hitchcock, Editor of Farmer & Gardener, Baltimore, Md., and at the Agricultural Warehouse, Boston, at $3 to $5 a pair. In May, Berkshire Pigs may be had of H. Huxley & Co., 81 Barclay st., N. Y., and of Mr. Hawes, at Albany. S. F.

We give publicity to the following letter from Mr. Rotch, of Butternuts, without his permission. We give it, however, because it exhibits the views of an intelligent and enterprising English gentleman, a practical agriculturist, and successful breeder of fine stock, who has within a few years settled amongst us.

The description of his *South Downs*, imported in November last, which appeared in other agricultural papers, was not, it appears, copied into the New-York Farmer. It is given in this number, and may not be the less acceptable to our readers from being accompanied with an account of his entire success in carrying them through one of the most severe winters ever known. "Want of hardihood" can hardly be hereafter urged as an objection against them.

We hope to have further accounts of the superior stock on the farm of Mr. Rotch, and shall be pleased to give engravings of some of them, if he will furnish the drawings.—[Prop. N. Y. F.]

Maple Grove, Butternuts, Otsego Co.
March 8th, 1835.

To Mr. Minor:

Sir,—Allow me to express to you my sense of your politeness in sending me the second volume of your useful periodical, the "New-York Farmer," for which I beg you will accept my best thanks, and a sincere wish for its yet more extended circulation—a wish, not bounded by a personal consideration for yourself only, as its proprietor, but growing out of a firm conviction of its usefulness, in common with all other well conducted agricultural periodicals, to the farming community at large; and I trust the day is not far off, when the farmer, who does not avail himself of his opportunities to read, but sets down satisfied with his own narrow sphere of observation, will feel that he is necessarily and comparatively *an ignorant man.*

In looking over the volume before me, I observe that you have availed yourself of illustrations, by wood cuts, to a greater extent than any other agricultural paper that has come under my notice; and it is a mode of addressing the understanding which I particularly value, and regret that it has not been oftener resorted to in relation to stock, where it was desirable to establish certain forms and points of shape and excellence, or describe individual character, or the distinguishing features of one breed from another. All this, it is true, may be elaborately done by the pen, yet the description has to be embodied by the reader's imagination; and I doubt not we should, some of us, be startled, could we see, bodied forth, the creations, by the minds of others, which our most exact descriptions have called forth.

On several occasions I have, myself, been greatly assisted, as a breeder, by *exact* and *correct* portraits of animals which have been acknowledged by unquestionable judges as standards of excellence—for instance, the portrait of Mr. Berry's cow, as given in the "British Farmer's Magazine," gave me, at once, a standard which no other description of her could have done. At the same time, I would earnestly protest against the caricatures and monstrous productions of the pencil that are so frequently offered to us as *portraits* of animals, both as being *out of truth*, and *out of nature*,—tending to mislead rather than help the judgment.

The winter here, as elsewhere, has been very severe; but I think my stock never looked better, or have thus far been wintered at less expense, from their readiness to eat the coarsest provender.

Several agricultural papers of the day noticed at some length my small importation of South Downs, (from the celebrated flock of John Ellman, Esq.,) which arrived in your city last November, but which, I believe, did not come under your notice. However, you may, as a friend to agricultural improvements, feel interested in hearing that their hardihood through this late severe season has surpassed my most sanguine anticipations, and that they are universally admired and approved by our practical farmers. They run in a small yard with an open shed, which, however, they seldom use; all the ewes but one have fine fat hearty lambs by their sides! they were dropped from the 23d to the 28th of February, inclusive; and, if you look at your record of the thermometer for the last fortnight, you will find that the mercury during very many of the nights was in the neighborhood of zero, and *below zero!* Still these little creatures did not appear to suffer *in the least* from the intensity of the cold! and, to my positive knowledge, it so happened that some of them had no shelter whatever, not even a board over them, on the nights of the 27th and 28th of February, and 1st of March, when the mercury was as low as 4°—at zero—and at 2° below zero! This, I think, sets at rest all question as to the endurance and hardihood of these beautiful and *high bred sheep;* and makes it unnecessary to look to the coarser family of "Hampshire Downs" for constitution to meet the severity of our climate.

Mr. John Ellman has again beaten all England, at the exhibition of stock at the Smithfield Show, with his South Down Sheep; and has taken the prizes for the best yearling and two year old wedders. It is an old established flock, and indisputably the best in England.

I should, perhaps, apologize for mingling with my thanks for your civility so much of egotism and my own affairs; but the deep interest I take in farming stock, and all in relation to its improvement, must be my excuse.

With respect, I am yours, &c. &c.
Frans. Rotch.

[From the Cultivator.]

South Down Sheep.—I was very much gratified, a few days since, on viewing six ewes and a buck of the much esteemed breed of South Down, lately imported, in the ship Hannibal, from the famous flock of Mr. John Ellman, England, by Francis Rotch, Esq., of Butternuts, Otsego Co. They were in fine condition, and did not appear to have suffered in the least from the voyage, which is a strong argument in their favor as to hardihood.

The buck is rather larger than they generally are, but of fine form and symmetry—great length, round and deep in body—fine in the head and legs—full and capacious chest—remarkably broad in the loin and heavy in the quarters—and well covered with a close fine fleece of wool.

The ewes are equally beautiful, and show higher breeding than the buck, and of course not so large. Take them together, I saw more to admire, more good points, more style and fashion, about them, than any others I ever witnessed.

This breed of sheep are justly becoming great favorites in this country. They will,

I think, cross well with the Merino or our native sheep, giving them stronger constitutions, and a greater aptitude to fatten.

From the transactions of the Pennsylvania Agricultural Society, I have transcribed the following account of this breed of sheep:

"The South Down Sheep are much smaller than the Dishly—they are more hardy—their wool is short, equal in quality to that of half-bred Merino—their fleeces are not so heavy—they carry more fat within, and much more flesh without, than either the Dishly, Tunisian, Irish, or Teeswater sheep. By their activity and vigor, both of muscle and constitution, they are fitted to encounter every difficulty, as well as to endure the extremes of heat and cold. They occupy, in England, one of the most exposed and least fertile portions of the island. Their mutton is of the finest kind, and commands the highest price, although, from the properties of the sheep, it can be produced at the least cost.

"I am of opinion," says this writer, "that the South Down sheep are as valuable a stock, if not more so, than any other that have been kept in this country."

"The fleece is close, heavy, and sufficiently fine for general purposes, and a small part fine enough for any purpose to which wool is likely to be applied for many years to come."

From the New-York Farmer and Horticultural Repository, the following description of these sheep is taken:

"*The South Down sheep* are without horns; they have dark or black-gray faces and legs, fine bones, long small necks; are low before, high on the shoulders, and light in the fore quarter: the sides are good, and the loin tolerably broad, back bone too high, the thigh full, and twist good. The fleece is very short and fine, weighing from 2½ to 3 pounds. The average weight of two year old wethers is about 18 lbs. per quarter, the mutton fine in the grain, and of an excellent flavor. These sheep have been brought to a high state of improvement by Ellman, of Glynde, and other intelligent breeders. They prevail in Sussex, on very dry chalky downs, producing short fine herbage." AMATEUR.

Albany, Nov., 1834.

On the Keeping of Cattle. By FARMER C. [For the New-York Farmer.]

Farmers, let us keep our cattle better. It is truly surprising, that in passing through many parts of our country, we are forced to observe those beasts given to man for his comfort and enjoyment so much abused; and all for want of proper care and sustenance. Look at the cows in some farm-yards, fed entirely on straw, and that sparingly. See them with their arched backs, on the south side of fences and buildings, with heads down, as if meditating an attack upon their fore feet, not yielding a farthing of profit to their owners, and oxen in the same miserable condition, that may be expected to do a great "spring work"—but when put to it, are found weak and faulty. Their services are lessened more than one half, especially if the weather is warm. This is not all: a man will follow a good team, one that does its full work, with more pleasure than a poor one; and if a team is capable of doing only half, we lose half a man's labor, as well as half the labor of a team, and lose also half the time, pay, and keeping of both; for it costs no more to keep them in good condition for business, than it does to keep them idle; and this state of things will certainly keep any farmer's *nose* eternally on the grindstone, and he will not be worth a copper at last. The farmer who *mis*manages in this way, may be sure of receiving a good many sly rubs from neighbor *Sleek-Sides*, which, to a sensitive mind, are extremely annoying. Let us now begin to recruit our teams of oxen and horses by feeding plenty of good hay, and three times a day a judicious quantity of grain; they will become capable of accomplishing with ease their daily tasks; we shall not be losers by it. Our cows at this season require a little extra keep. A few potatoes or turnips, a small quantity of meal daily, will greatly improve their condition, and give them strength to bring forth a healthy and vigorous offspring, and to afford us a plentiful supply of milk. Let us make it manifest that our flocks, herds, and teams, look in the best order and condition in the spring of 1835 we ever knew them; I pledge myself no one will regret it.

FARMER C———.

Manlius, February, 1835.

Forcing of Vegetables. By X. Y. Z. [For the New-York Farmer and American Gardener's Magazine.]

SIR,—Having (on the other side of the Atlantic) devoted the principal part of my time to horticultural pursuits, I feel a strong desire to turn my attention to the same occupation in this country. For this purpose I have procured a piece of good garden ground, with several forcing frames, and expect to commence operations early in the spring; but such is the difference of climate and progress of vegetation, that I am afraid my former knowledge will not avail me in every case. I wish, therefore (if consistent with your views), to present through the medium of your widely circulated journal, a few simple inquiries upon this subject, hoping that some of your more experienced correspondents will give the desired information, or say where it can be obtained; and I, in my turn, will be happy to communicate the result of my experiments, for I mean to try experiments.

1st. *Melons and Cucumbers.*—What is the best time to sow cucumbers and melons in frames, in order to obtain an abundant crop at the least expense and trouble? What varieties are considered best for forcing? Is there any effectual remedy against the bugs by which this family of plants is infested? When no more danger is to be apprehended from frost, should they be kept in such a state as to cover the plants at night, or in stormy weather?

2d. *Sweet Potatoes.*—Are they ever raised with success in this northern latitude?—Where can the seed be procured, and what is the common mode of management?

3d. *Indian Corn.*—Which is the earliest variety, and which is best adapted for using green?

The above inquiries may suffice for the present, and you are at perfect liberty to make any use of this communication you think proper. Yours, &c. X. Y. Z.

Troy, N. Y., 17th Feb., 1835.

List of the Most Desirable Varieties of Vegetables. By WM. PRINCE & SONS. [For the New-York Farmer.]

Linnæan Botanic Garden and Nurseries, near New York, March 20, 1835.

DEAR SIR,—We have been repeatedly asked to designate the finest varieties of vegetables, and we now enumerate some of the most desirable, and will do so with regard to others at a future opportunity.

Yours, very respectfully,

WILLIAM PRINCE & SONS.

Beet.—Long blood, early turnip blood, early yellow turnip, early white sugar.

Cabbage.—Earliest French, early York, early royal dwarf, large York, French ox-heart, early emperor, bonneuil, harvest Battersea, large late Bergen, early Savoy, Cape Savoy, monstrous French Savoy, large Pancalier Savoy, the latter extra fine, and far surpassing the kinds of Savoy usually cultivated.

Carrot.—Early scarlet horn, Altringham, long red Studley, and large white.

Celery.—Turkish large white solid, North's giant red, dwarf curled.

Cucumber.—Early long frame, long green prickly, long green Southgate, for table, the latter longest of all; and the small green, and gherkin, for pickles.

Endive. — Italian green curled, and white Batavian.

Indian Corn.—Early white Tuscarora, and sweet or sugar.

Lettuce.—Early curled Silesia, large early white French, Versailles, Turkish, and red edged early white, as head or cabbage lettuces for spring and summer sowing, and Florence Coss, magnum bonum Coss, and monstrous Coss, for loose or less solid heads. The Coss lettuces are deemed sweeter and more tender than the cabbage varieties.

Onion.—Early silver skinned, and pale red Madeira, are earliest of all, and sure to attain their size the first season. The yellow Dutch, not quite as early, but produces very large onions the first season.

Melon.—Pine apple, Persian, citron, Skillman's netted, Minorca, netted Romana, French Muscade, Malta winter, all of which are green fleshed. The Cohansa, Imperial, Cyprian, green fleshed sugar, large yellow Cantaloup, and other Cantaloup varieties, are also valuable.

Peas.—Six weeks, Washington, dwarf blue imperial, dwarf green marrow, Knight's marrow, Woodford's marrow, and various others.

Pumpkin. — Spanish cheese, yellow cheese, &c.

Radish.—Earliest French scarlet, very tender, and earliest of all, Mason's scarlet short top, salmon, and white Naples, as long varieties. The scarlet, violet, and white turnip varieties, are best for early sowing; and the yellow turnip and Spanish varieties, for hot seasons, or for tropical climates.

Squash. — Summer bush, summer crook-neck bush, vegetable marrow, and Italian, for early; white Canada, yellow fall crook-neck, for autumn; and Teneriffe, acorn, and cocoa-nut, for winter.

Turnip.—Early white, and early yel-

low Dutch, white stone, yellow stone, &c. for spring sowing, as garden varieties.

Cauliflower.—Early, and half hardy.

Broccoli.—Grange's Cape, sulphur-colored, purple cape, and new imperial late dwarf white.

We hope often to hear from the Messrs. Prince, in relation to the various products of their beautiful garden.—[Prop. N. Y. F.]

Apple Cuttings—Fruit under different names—Opinion of Kenrick's List of Gooseberries. By M. Saul. [For the New-York Farmer.]

Lancaster, Eng., Jan. 21, 1835.

Mr. Fleet:

Sir,—I received your Magazine for December on January 13. You will, I hope, have received my letter of December last. Having a package to send to Boston, I have inclosed a small box for you, containing two specimens of apples and cuttings for grafts, taken from the trees that produced the apples. I sent specimens of those apples to the London Horticultural Society last April, to know whether they had them in their collection. The following is the answer:

"The apples are not in the London Horticultural SocietyGarden by the names given by Mr. Saul, nor do I know them. No. 1, the Royal Shepard, is a very fine and excellent dessert apple. No. 2, the Bridget, has considerable resemblance to the Yellow Bellefleur of the Americans.

"R. Thompson,
"Hort. Society Garden.
"April 11, 1834."

If the specimens arrive safe and in good order, I hope you will be able to judge whether the Bridget Apple is the same as your Yellow Bellefleur. The specimens are numbered with a pen and common ink. This may be of interest to your readers, to know that we of England, when we send specimens of apples and pears to different correspondents in Britain, number them with pen and ink, as it will not come off, if the numbers are dried before they are packed.

I think much good might be done if the readers of the New-York Farmer and American Gardener's Magazine would, in different parts of America, when they find a valuable sort of fruit, send it to the editor, so that he would be better able to communicate it to those competent to judge. This is the plan I adopt, by sending specimens to Loudon, the editor of the Gardener's Magazine, which he hands over to the London Horticultural Society. Much benefit has been derived, and considerable interest taken in this plan, in England; and I have no doubt that a similar plan would be very beneficial in America, as I have been informed that several new varieties have been found in the great native orchards of Ohio.

I suppose you have seen Lindley's Guide to the English Orchard, a work considered of great interest in England, as it has been of great benefit in making known the different varieties that have been going under different names. I have found several varieties in this neighborhood described by Lindley by different names, and only known by the other, as he supposes, in certain parts,—the fruit having been dispersed into different parts by accident, and thereby been the means of different names being given to the same fruit. So that in different parts fruit has been reported to be a new variety, when in fact it was not; and as no complete arrangement of apples has yet been made in this country, nor has such been satisfactorily done on the continent, the difficulty of making such an arrangement will be considerable; and the possibility of arriving at perfection in such an undertaking is rendered doubtful, from the great number of the varieties, and the want of permanently decisive characters among them. In the mean time, much might be done through your Magazine in America, as the London Horticultural Society are doing much to illustrate the subject of fruits; and in a few years they will no doubt settle a nomenclature, and determine the merits of all the fruits now in Europe, or perhaps the world.

If the new edition of Loudon's Encyclopædia of Gardening has arrived in New-York, you will find in part 14, page 890, a descriptive catalogue of Apples, which was furnished by Mr. Thompson, of the London Horticultural Society, and I think it would be of interest to publish it in your Magazine.

Having been applied to by one of your readers to give my opinion respecting the list of Gooseberries given in the New American Orchardist, page 295: the first described is the Top Sawyer. I consider this a most excellent early fruit; it is not late fruit; it resembles the Huntsman very much, and I am afraid it will be too tender a tree for America, being a very weak and tender grower.

Champaigne—little cultivated in this part, owing to others of more esteemed value.

Roaring Lion—highly esteemed here, both for eating from the tree, and preserving.

Marquis of Stafford—not known here as a fruit of much merit.

Crown Bob—much cultivated for the markets, as an excellent fruit.

Old Rough Red—considered not worth growing here.

Wilmot's Early Red—not known here.

In the Greens there is only one worth noticing, and that is the Ocean—deserving of cultivation.

In the Whites there are the White Lion, a late fruit; Wellington Glory, an excellent fruit, early; Whitesmith, early, in quality the same as Wellington Glory.

Yellows—Viper, very good; Rockwood, highly esteemed as an excellent fruit, and well deserving of cultivation.

The box which I have sent for you is in a package which I have sent to Mr. Kenrick, Nurseryman, of Newton, near Boston.

The Apple Cutting, No. 1, is the Royal Shepard; No. 2 is the Bridget; the fruit has the same numbers as the cuttings.

The two Pear Cuttings are the St. Germain De Martin Pear, a new Seedling, and sold last year at 21*s.* per tree, a most excellent fruit; the flavor is very like the Jargonelle, but the flesh is much more melting, and juicy to the core. It is a valuable summer Pear, ripe in August, and keeps till November, and a free bearer. If you have not received the box, when you get this letter you had better write to Mr. Kenrick, requesting him to forward it to you. I have sent him two trees of it, and also cuttings of the Royal Shepard and Bridget Apples.

I remain, yours,

M. Saul.

Preventive for the Turnip Fly, or Bug. By Senex. [For the New-York Farmer.]

As the season is at hand for sowing early cabbages, radishes and turnips, which are so liable to be destroyed by the same insects known by the name of the turnip flea, fly, or bug, I take the liberty of sending you, for the Magazine, what I have found an effectual preventive of the ravages of this little destroyer—it is very simple and within the reach of any one, being neither more or less than covering the drills or beds with millinett boxes, the same as in use for covering melon and cucumber hills.

My garden is so subject to be overrun by these insects, that often three sowings of cabbages have been destroyed in one season, and if a few escaped or survived, they were so mutilated as to prove of little use. Ashes, plaster and lime, had been tried without effect, and finally the hot-bed was trusted to as the only sure resource.

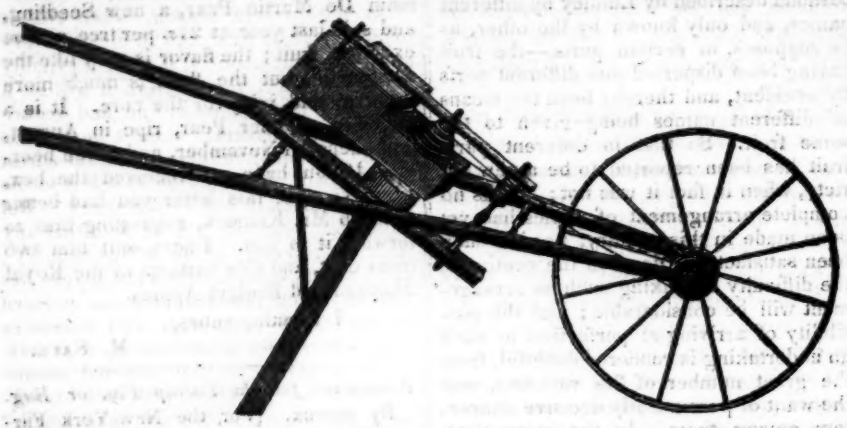
On 12th and 14th April, 1834, early cabbages and radishes were sown in drill in ground newly dug, and covered immediately by these millinett boxes, of which I have about sixty, but used only ten or twelve for this purpose, together with four hand glasses or boxes used for raising early melons and cucumbers—these boxes are like hot-bed frames in miniature, and contain four small panes of glass each. The plants came up and prospered equally well in each, or if there was any advantage, it was with those under the millinett. No flea or bug was seen, and the boxes were kept on until the plants were thinned, and the leaf so far advanced as to be out of the power of the insect. On the 5th of May, winter cabbages, savoys, and cape broçoli, were sown, and treated in the same way, and with equal success. In both cases the bug did attack the plants after the covers were removed, but without any injurious effect. In the last case no hand glasses were used, and only ten millinett boxes, twelve inches square each, under which twice as many plants were raised as were wanted here, though no account of the number was kept.

This simple method may probably be insufficient for market gardeners, who would have a great extent of beds or drills to cover, but is amply sufficient for farmers, or others who raise for their own use, and not for sale. The boxes used for the early sowing are off in time for covering the melon and cucumber hills.

Though this experiment is that of only a single season, yet its nature is such as to leave little doubt of its general and permanent success. Yours, &c.,

Senex.

March 4, 1835.



Machine for Planting Corn, &c. By S. B. [For the New-York Farmer and American Gardener's Magazine.]

Sir: I send you herewith a drawing of a machine for planting corn and other round or oval formed seeds of any size, which was exhibited at the meeting of the New-York Agricultural Society, held at Albany on the 5th of February last, by Mr. Daniel Buck, of Lowville, in Lewis county, which I think is as important an improvement in the apparatus of husbandry as any article I have seen of its cast. The machine was patented, as appears by the specification which Mr. B. politely favored me with the privilege of copying, between six and seven years since; and the inventor, who Mr. B. states is a very ingenious and worthy young man, in the fulness of his confidence, made a large number of the machines; but before he had offered them to the public, the building in which they were deposited took fire and was burnt, and the machines with it, except two or three. Youthful genius is seldom calculated, though often doomed, to bear misfortunes; and so it happened here, for the young man was discouraged and abandoned the project, and had it not been for Mr. Buck, it would probably have gone untried to oblivion. He took one of the machines which escaped the fire, and has used it ever since in planting corn, ruta bagas, and other similar seeds, and finds it of such importance that he could not now be persuaded to dispense with it; and as his farming is on quite an extensive scale, it cannot, I think, need any further recommendation. Mr. B. says it is an easy task to plant an acre of corn in two hours; and that the improved manner in which the work is done, is of much greater importance than the saving of time, as the corn is not only planted with much greater accuracy—the number of kernels, distance of the hills, and depth at which deposited, being always uniform—but the seed being uniformly enclosed in moist earth, the germination is immediate and simultaneous. Mr. B. is confident, from his experience, that the additional yield in a field of less than 10 acres, either in corn or ruta bagas, will pay for the machine. It will deposite the seeds at any distance required, from one inch to any number of feet, and either single or any number required.

The machines are now making at Waterford, and will be ready for sale in season for the spring planting. S. B.

Lansingburgh, March 2, 1835.

Experiments on Bone Manure. By J. R. Watson. [Communicated for the New-York Farmer.]

Perth Amboy, Aug. 9, 1834.

Mr. John Hornby: Sir—Yours of the 5th inst. is at hand, and in reply to your questions respecting the use of bone dust as a manure, I would state:

1st. That I have used bone dust both on a light and on a heavy loam, without any perceptible difference in its effects.

2d. That I planted my corn in drills 5½ feet apart, strewing the bone dust in the drills at the rate of 16 bushels per acre, the corn very good. I also planted in drills two rows manured highly with hog-pen and yard manure, and two rows with fish, neither of which are equal to the corn manured with bones.

3d. I manured about an acre of grass with 25 bushels of bones spread broadcast, and found it in effect superior to any other manure I had before used for that purpose; the grass grew most luxuriantly, and was fit for the scythe two to three weeks sooner than any other around it.

4th. I also used it broadcast on oats at the rate of 25 bushels per acre. Its effects, by those who witnessed it, were said to be superior to farm-yard manure.

5th. From want of time to prepare it, I have not tried it in compost, but should suppose its effects in that way would be more immediate, from its having undergone a previous fermentation in the compost heap.

For trees I have found bone dust a most excellent manure.

Yours, respectfully,

John R. Watson.

Remarks.—For the above I am indebted to Mr. Hornby. Experiments, in this country, on grass and oats, have not, I believe, been before detailed in the Farmer. They are important and quite satisfactory. The number of bushels on grass is greater than I should suppose was necessary. S. F.

Keeping Cattle in Stalls.—Two of my cows I keep in stalls made under the cow-house, and two are allowed to go loose in the yard. The latter keep themselves perfectly clean, with little dry substance thrown into the yard; the former will dung themselves, although pains are taken to clean out the stalls and litter them. With the same exposure the confined cows suffer the most from colds, therefore cattle that are confined should have warmer enclosures than those that are not. S. F.

NEW-YORK FARMER.

APRIL 1, 1835.

Proscription for Opinion's Sake.—It is not my intention, or desire, to interfere with the *religious* opinions of any man, or class of men—and more especially so, in a work which is designed to aid in improving the agriculture of the country; and not to interfere with, or mingle in, the religious and political controversies of the day.

I am led to make these remarks in consequence of having received a letter from a gentleman belonging to a church, whose opinions were referred to in an article in the January number of the Farmer, headed "New Year's Thoughts," by the Editor.

The article alluded to was in type before I was aware of its contents.

It has been my aim, whatever may be my own views upon so important a matter to devote my periodicals exclusively to those subjects upon which they *profess* to treat, and not to turn aside to discuss matters of faith. It is still my intention to pursue that course. The Proprietor.

Our worthy friend, Mr. Walsh, of Lansingburgh, has just received from a gentleman in England, some seeds of the "Hand Glass Cucumber" and of the "Black Rock Melon." He has left a small portion of each in this office, for distribution among such friends to the "New-York Farmer" as make early application.

We take the following account of the proceedings of the State Agricultural Society from the Cultivator for March. We hoped to have been present at the meeting, but were unavoidably detained at home.

The New-York State Agricultural Society held its annual meeting, and transacted its ordinary business, on the 15th and 16th of February. Mr. Allen, appointed to deliver the annual address, was prevented from attending by unavoidable circumstances. A memorial was directed to be presented to the Legislature, suggesting the propriety of offering pecuniary rewards for the discovery of a preventive to the ravages of the grain worm. This memorial, together with some interesting communications read before the Society, will be published in the next Cultivator.

The following officers were chosen for the current year:

Jesse Buel, of Albany, *President.*

L. F. Allen, of Erie,
C. H. Hall, of New-York,
John B. Yates, of Madison,
John B. Duane, of Schenectady,
} *Vice-Presidents.*

John P Beekman, *Corresponding Sec'y.*
John Keyes Paige, *Recording Secretary.*
Caleb N. Bement, *Treasurer.*

Alexander Walsh,
Horatio Hickock,
John Townsend,
} *Additional Members of the Executive Committee.*

J. Buel, *Conductor of the Cultivator.*

Crops and Weather for March.—During this month there have been frequent and sudden changes in the weather—a constant succession of freezing and thawing. This would have been, very probably, injurious to winter grain, had not the ground been several times covered with snow, of considerable depth, once as deep as any during the winter. The extent of the injury to grain will doubtless depend very much on the weather in April. For early and forced vegetables, this month has not been propitious.

Although March has exhibited characteristics of a winter month, still we may have an early and a favorable spring.

Weather and Climate at St. Augustine.—Extract of a letter to H. Huxley and Co., dated Augustine, East Florida, February 23d, 1835.

You will like to hear of events at Augustine, and sorry I am to announce disastrous tidings. I believe I have eaten my last orange for some months. I had congratulaed myself on escaping from the rigors of a northern winter, but alas! "from Scylla we fall into Charybdis." When I saw the accounts of the unheard of severity of your winter, I thought myself lucky to be here in Florida, but alas! on the 8th Feburary, after a little rain, the wind veered to the North-west, and a keen frost set in, rivalling the severity of your general winter; thermometer stood at 8 above zero; water of all kinds froze in my room. You may perhaps be aware that houses in this city are built for the temperature of 60°; have few windows, terrace floors, air holes plenty; are therefore little adapted to such frosts as we have experienced. Prior to this unfortunate visitation all looked gay and cheerful, the beautiful green of the orange grove, sparkling with its Hesperian fruit (second crop,) was a gladsome sight; the young blossoms were fast appearing, and in a few days we should have inhaled an Indian perfume, from the thousand groves around us; a few anonals had commenced blowing. Alas! how changed the scene. The trees are of now a yellow ochre color, the pendant fruit looks parboiled, and, worst of all, the shoots of last year's growth are all destroyed. How far the mischief may reach, I cannot say; the month of May will tell the damage; that it is extensive, there is no doubt, but at least $100,000 will not pay it. I have heard from 100 miles South, the rattans and cane seed are all killed, so that sugar planters and orange growers share alike. St. Augustine was rising in wealth, and a stir of improvement was visible, but I fear that this will be a severe check to improvement. Groves that readily commanded $2 to 3000, are now not worth a third of the value. On the 28th January, the thermometer stood at 72; on the 8th February only 8 above zero. Do you furnish greater extremes at New-York! There are a few specimens of hennequen agave here, but they would not stand the low temperature, they are killed. I have not yet heard whether this cold blast extended to latitude 26. I hope for Dr. Perrine's sake, not; his statement of the climate of Augustine is very correct. I have not yet received the New-York Farmer for February: will you see that it is forwarded to me.

Spring Work.—At this season of the year it will be found profitable for the readers of the Farmer to look over the past volumes, and see what suggestions are adapted to the season. I take the liberty to turn their attention to vol. vii, 1834, for a few hints,

At page 3, a writer says that peach trees, so far as worms at the root are concerned, may be preserved for 20 and more years, by carefully taking out the worms for the two or three first years of their growth. Old wood, he says, should be removed.

Easy method of sowing grass seeds, page 13—Jerusalem artichokes, page 51—early sown vegetables inferior in quality and quantity, page 66. The writer says, "I am fully convinced, that with the exception of onions, peas, pepper-grass, lettuce, English turnips, and a few potatoes for early use, all kinds of horticultural produce, which are generally cultivated in New-England, will succeed best, nine times in ten, by not sowing until the last week in May." Transplanting, page 67—Gardeners' Work, page 73, 103—Sow tares middle of April, 101—Florists' Work, 105—Arranging colors of Flowers, 149. S. F.

Laying down Spring Butter.—This important article in every family is considered best, even for winter use, if made in May and June. A lady of my acquaintance is obliged to put on her table the greater part of her churnings; yet she continues to lay down a great deal of her winter's butter during these months. As soon as each portion of the churning, however small, is put in the firkin or jar, brine is poured on to keep it from the air. Her butter is excellent.

S. F.

March, 1835.

Ploughing in Oats.—When the ground is sufficiently thawed I employ a portion of my time in pulling corn stalks, which were left standing in the field. These I throw into my hog-pen and cow-yard. In pulling them the ground becomes quite level. I wish some reader of the New-York Farmer to inform me, if it would not be advisable to sow the oats first, and then plough the ground. It is my intention to lay the lot down to grass with the oats. Must I harrow once or twice after ploughing? Will it answer to sow other grasses besides clover?

I wish answers to the above inquiries in accordance with a rule I adopt for the regulation of my farming operations:—To do every thing in the best manner with the least possible expense and labor. S. F.

March 3, 1835

Hartford County Silk Society.—On Thursday, the 7th inst., a number of gentlemen from different parts of the country, met in Hartford, and formed a society, "to introduce and extend, throughout the country, the knowledge and practice of cultivating and raising mulberry trees, of feeding and managing silk worms, and reeling silk from cocoons, in the most approved method."—[N. Y. Daily Adv.]

Silk Manufacture.

At the present season, when silk is beginning to be produced in almost every section of our country, it must inevitably be but a short time before it will be a matter of importance to find and secure a permanent market. It must be obvious to any person of reflection, that the surest market will ultimately be to sell it to the manufacturers in our own country. But as it can scarcely yet be said that any such manufactory exists in this country; and as considerable time must elapse before any such establishment can succeed in the more complicate and extensive branches of silk manufacture, it is certainly a matter of high national importance that we commence with such branches as are more simple, and on a smaller scale, therefore hazarding less capital, and the skill more easily acquired.

Under these impressions, I would hereby inform the producers of silk, and any one who wishes to adventure in manufacturing it, that there is now in this county a mechanic, whose purity of character and correctness of habits are not perhaps surpassed by any one, who has been nearly 15 years employed in Europe as the head mechanic in a ribbon factory, in which were from 30 to 80 looms operated by steam, weaving from 16 to 20 pieces in each loom, and each piece averaging about 20 yards of ribbon per day. This man is perfectly and practically acquainted both with making and using every part of the necessary machinery, and is a complete master of every part of the business. He is in no regular business equal to his talents, and is very desirous to find some person who would invest a small capital, which he is confident he could gradually increase; and his habits and character would convince any person acquainted with him of the correctness of his confidence. Could he meet with encouragement, he would obtain persons of his acquaintance, for whose characters and abilities he can vouch, capable of superintending and teaching each branch, and of producing every species of ribbon, from plain to the most fanciful and complicated figures, all woven by artificial power.

There can scarcely be a doubt but that such an establishment would be profitable, and would not only save vast sums of money to the country, but would be a respectable beginning, which could safely and perhaps rapidly extend itself to branches of more consequence.

Lansingburgh.

Self-Sharpening Wedge Plough.—In the last volume of the Farmer, page 301, attention was called to these ploughs. Mr. Mayher, a manufacturer of them, now has them of various sizes, suitable for the various kinds of ploughing. The one I have in use is too heavy, being one of his first making. It is my impression that they are an economical, durable, and superior plough. They may be had of Mr. Mayher, in Grand street, and of Messrs. Huxley & Co., Barclay street.

In commencing the second volume of the Cultivator, and before the farming operations of the season have commenced, we are desirous of drawing the attention of our readers to some prominent objects of improvement in their farming operations. We know the distrust which farmers generally entertain to new practices in husbandry, and are fully apprized, that what we are about to offer forms already a part of the practice of many who will peruse our remarks. Yet, if we should be instrumental in inducing a few, by adopting our suggestions, to improve the condition of their farms, and to render their labor more productive, our object will be effected, and we shall be satisfactorily compensated for our trouble. All we ask is, that our recommendations may have a fair trial, sufficient merely to enable the experimenter to judge of their utility, and on a scale that shall involve neither great labor nor expense. And we shall offer nothing which we have not ourselves tested, and believe beneficial. We will begin with

Manures, — which are the basis of all fertility in the soil, precisely in the same way that forage, grain and roots, are the basis of fatness in our farm stock. All animal and vegetable manures have once been plants, and are capable, by a natural process, of being converted into plants again. They should therefore be husbanded with care and applied with economy. Every crop taken from a field diminishes its fertility, by lessening the quantity of vegetable food in the soil. Unless, therefore, something in the form of manure is returned to the field, an annual deterioration will take place until absolute barrenness ensues. This fact needs no other illustration than is afforded by every bad managed farm. The object of the husbandman should be to *increase* the fertility of his farm, because upon this materially depends the profits of his labor. To do this, we advise that cattle yards be made dishing, so as to collect the urine and liquids in the centre, and that these be kept well littered with straw, stalks, and the refuse vegetables of the farm, to take up and preserve these liquids, which are a valuable part of the manure: That these yards be thoroughly cleaned in the spring, and their contents, together with the manure from the stables and pig pen, applied to hoed crops, as corn, potatoes, beans, &c., before fermentation has progressed far; that it be spread broadcast, ploughed in as fresh as possible, and the ground rolled or harrowed before planting. Thus *all* the manure will be saved, the hoed crop greatly benefitted by it, the weeds destroyed, and as much fertility left in the soil for the grain crop which is to follow, as the same manure would have afforded had it lain in the yard till after midsummer, and been then applied. But if manure *has* rotted, it may be applied to the turnip or small grain crop. In these cases it should not be buried deep, and may with advantage, at least on dry soils, be harrowed in with the seeds, where it serves frequently a beneficial purpose in protecting the young grain from the severity of winter.

Draining.—It is necessary, for the perfection of most crops, that they should enjoy all the benefit of our summer heats. When a soil is saturated with spring water, though water does not appear on the surface, the roots of the crop which grow upon it penetrate the wet part, which may be supposed to possess a temperature never above 60 degrees. The crop consequently fails for want of the necessary heat in the soil. Decomposition of vegetable matter, the food of the crop, is also seriously retarded by this cold temperature. Stagnant waters are as unhealthy to cultivated crops as they are to animals. We have now in our mind an extensive inclined plane, which we examined last summer, of more than half a mile slope, embracing 70 or 80 acres, and possessing a rich soil, one-fifth of which was rendered unfit for tillage or the finer grasses, in consequence of springs which burst forth near the top of the plane, the waters of which passed down its whole extent, and principally in the soil, in gentle depressions or hollows. We are confident the evil here might be remedied at a slight expense, which would be remunerated in a single season, by draining. Grounds habitually wet, either from springs, or water stagnating in the soil, for want of declivity or drains to carry it off, will not produce good crops. Draining is an effectual cure for the evil. Open drains will alone answer to carry off surface water, and in situations where much water may occasionally pass. These should hardly ever be less than 3 feet broad at surface, and 2 feet deep; the side sloping so as to leave the bottom 8 to 12 inches broad. A greater depth and breadth are often requisite. Long experience has convinced us, that good drains, in the end, are always the cheapest drains; and that when they are well constructed, they constitute one of the most profitable improvements of the farm. But we consider under-drains, in soils which are habitually wet, cheaper, better, and more profitable to the proprietor, either to carry off stagnant water from flat surfaces, or to arrest that proceeding from springs, than open drains. They are more efficient, because they generally lay deeper, and are not so liable to be choked up. They are more economical, because they seldom, if well made, require repairs, and do not waste any land. They are beneficial on all flat surfaces which have a retentive sub-soil, and upon all slopes rendered wet by springs. They are wanted wherever water, at midsummer, rests upon the subsoil, or saturates the soil, within the reach of the roots of cultivated crops. We do not here mean to discuss the principles, or describe the mode of draining, as we have published much upon this subject, and design to publish more, with such pictorial illustrations as shall serve to render the subject perfectly familiar to our readers, (see page 114.) A very simple means of determining whether a field is likely to be benefitted by underdraining, is, in June or July, to dig a hole, like a post-hole, say two feet deep, and the presence of water at the bottom, and the height to which it rises, will at once decide whether the land is to be benefitted, and to what extent, by under draining. Draining effectually is almost an untried experiment with us. We are not familiar with the process, and startle at the expense; yet if we compare the cost with the advantages which will accrue for a succession of years, we shall find the operation to be a very economical one.—N. B. Well drained grounds may be sown or planted ten to fifteen days earlier in spring than those which want draining, and the crops are much less liable to be injured by heavy rains.

Clover—will grow on pretty much all soils that have been laid dry by good drains. It is the basis of good farming, on all lands susceptible of alternate husbandry. Its benefits are threefold: it breaks, pulverizes, and ameliorates the soil by its tap roots, and it furnishes a cheap food for plants as well as animals. A good clover lay is worth to a crop, by the food which it affords, as much as five tons of manure to the acre. To ensure a good lay, at least ten pounds of seed should be sown to the acre, and the ground well rolled. Its value, as food for plants, depends more upon the quantity of roots than upon the luxuriance of the stems, though the abundance of the latter will depend in a great measure upon the number of the former. To obtain the full value of this plant, we must cultivate it as a food for our *crops*, as well as our cattle; and in this case we should use it as such the first or second year, before it has run out. There is economy in always sowing clover with small grains, though it is to be ploughed in the same or the next season. Ten pounds of seed costs upon an average one dollar—the labor of sowing is comparatively nothing. Its value to the next crop cannot be less than quadruple that sum, to say nothing of the feed it may afford, or its mechanical amelioration of the soil. We cannot avoid again urging a trial of the method of making clover hay *in cocks*, as we have heretofore recommended, notwithstanding the rebuke we have had upon this head from our esteemed friend and correspondent, Mr. Perkins. We have followed the practice twelve or fifteen years, and hence speak from experience, and with confidence, of its manifest advantages over the common method of spreading from the swath. Put it into small cocks, with a fork, from the swath, as soon as it is freed from external moisture, or well wilted, and then leave it to cure. An hour or two exposure to the sun, previous to its being carted from the field, is all the further care it will require. This mode saves labor, prevents injury from rain, and secures the hay in the best possible condition.

Pruning Fruit Trees.—We deprecate the old practice of trimming fruit trees in autumn, winter or spring. Vegetation being then dormant, the tree can make no speedy effort to cover the wounds inflicted by the knife and saw. These wounds, exposed to searching winds, and a scorching sun, become diseases, and often bring on premature decay. Besides, an attentive observer must have noticed, that whenever pruning is performed in the spring, three shoots are often thrown out where one has been cut away, so that the very evil which it is intended to remedy, a redundancy of useless spray, is increased rather than diminished. If pruning is performed in summer, after the first growth, say in the first fifteen days in July, or the last seven in June, the tree then abounds in elaborated sap, the wounds are speedily healed, and amply protected, by the foliage, from the malign influence of the sun and winds. We have remarked in successive years, and the fact is noticed by others, that when a tree is pruned in summer, there are very seldom any sprouts seen to shoot from the parts where the knife and saw have been employed. If the reader will try the experiment of summer pruning upon a few trees, we have little doubt he will agree with us, that it has a decided preference over that performed in any other season. The grand error of our farmers consists in not pruning at all, or only at long intervals, when it becomes necessary to take out large limbs, and in doing this, the axe is too often employed, which mangles the trees so badly that they seldom fully recover from it. Pruning should be performed annually, while the limbs to be taken off, and the spray, are small. The operation is then trifling and safe, and the wounds speedily heal.—[Cultivator.]

CULTURE OF THE MULBERRY.—It seems to be a matter well established, that at least the white mulberry will do well in our state. We wish we could affirm as much of the morus multicaulis, but our experience compels us to say, that its success in the northern section of the State is at least doubtful. The next question to be solved is, can the silk business be rendered profitable? That it can, in families who have females and children, who will gather the leaves and take care of the worms, we have no manner of doubt. The last Farmer's Register contains an interesting letter upon the subject of silk culture, translated from the French, which the restricted limits of a monthly sheet prevents our publishing in detail, as it does many other articles of interest. It is written by M. Carrier, of Aveyron, into which department the silk business has been recently introduced, to M. Bonafous, director of the royal garden at Turin, giving an account, among other things, of the product and profits of his silk business in 1833. This is stated in the following extract:

"I will now show you," says the writer, "the account of the sale of my silk of 1833. I shall take care to subtract the expenses, and you may see the clear profit.

29 1-5 kilograms white silk, at 63 francs the kilogram, . .		1,830f. 60c.
2 11-12 inferior silk, at 18 fr. the kilogram		53 95
		1,884f. 55c.
Deduct for portage		16 00
		1,868f. 55c.
Value of the different remains, coming from the remains of the filatures used at my house,		115 00
Sum realized . .		1,983f. 55c.
For the expense of management, ...	171f. 75c.	
For filature, reeling,	263 85	
	435 60	
Profit . . .		1,548f. 95c.

"To appreciate the advantages of the cultivation of the mulberry, one must remember that this sum, 1,548 francs of profit, (after deducting all the expenses,) is the product of leaves furnished by trees which have occupied for eight years, on an average, a piece of ground rather less than half a hectare, or at most two seterees, a local measure."

The kilogram is two pounds two ounces and four grains, avoirdupois; the franc is 18 ¾ cents; the c. (centime) one hundredth part of a franc; the half hectare is about 1¼ acres. Hence, the gross product in silk, from one and a quarter acres in mulberries, was 69⅓ lbs. which sold for $250.25, or about $5 the pound, and after paying all expenses afforded to the proprietor a net profit in one year of about $290.40.

We quote again from M. Carrier's letter: "The proprietor who wishes to occupy a plantation of mulberry trees, supposing he had already at his disposal a quantity equal to those which I stripped last spring, and in the same condition, that is, producing 160 quintals of leaves, at four francs the quintal. Well, this proprietor could have obtained from half a hectare (about 1¼ acres) of ground, with no other expense than that of cultivating the trees, a revenue of 640 f., or 320f. for each seteree, composed of 640 square fathoms.

"The person who would have bought this quantity of leaves, to devote himself only to the raising of silk worms, would have had (as I did) 928 pounds of cocoons, and would have sold them at 1f. 50c. a pound, according to the course of that time: this sale would have produced 1,392f. 00c.

Deduction of expenses, purchase of about 8 ounces of eggs, at 3f. the ounce, 24f. 00c.		
Expenses of all kinds for the management	171 75	
Price of 160 quintals of leaves, at 4f.	640 00	
Rent of the room,	60 00	
		895 75
His part of the profits for 40 days' attendance		496 25
The filateur, who buys the cocoons, obtains a quantity of silk equal to mine, and sells it in the same manner, . .		1,868 55
He draws from the remains . .		115 00
Total,		1,983f. 55c.
It is necessary to deduct from this sum, as the cost of 928 pounds of cocoons, at one franc 50 c. . .	1,392f. 00c.	
Expenses of the filature	263 85	
		1,655 85
Clear gain of the winder . .		327f. 70c.

"The laborer, with a family, takes for his share the remains of this filature, employs his wife and children to prepare and wind the low and different qualities of silk, which are in much request and readily sold. These products can be valued, after having received all the suitable work, at . . . . . 165f.

Deduction for the purchase of the first materials . .	50f.	
Hand work, although gained by the family	30	
		80
Profit, without including his work, already paid, ...		85f.

"A simple recapitulation will make the result better understood than this division of the labor, which division certainly agrees, in many cases, with the taste or situation of persons who neither wish, nor are able, to undertake all parts of the business.

The land owner, who sells 160 quintals of leaves, at 4f. receives . .	640f. 00c.
The person who buys them, and manages the raising, gains	496 25
The winder, who takes charge of the cocoons, winds them, and receives for his labor .	337 70
The laborer who works up the remains, does the labor for 30f. and gains besides . . .	85 00
Sum equal to the total profit which I have made by the union of all these operations	1,548f. 95c.

"The calculations which I have just presented, speak loudly enough without my adding the least observation to make the evidence more sure; I will only say, one of the great benefits of this direction of industry is to make a considerable mass of work for all classes of society, and for all ages."

A plantation of mulberries may soon be obtained, by procuring the young trees from the nurseries, or by sowing the seed. An ounce of seed will produce from two to three thousand plants. Sow early in May, upon a bed of good earth, well pulverized, in drills a foot apart; cover with half an inch of fine mould, compress the surface slightly with a hoe, that the soil may better retain moisture, and come in contact with the seeds, and if the weather is dry, water occasionally, to aid germination, and to enable the young roots to get firm hold of the earth; keep the bed free from weeds, and after one or two years, prune out the plants in nursery rows, three feet apart, and in two years more they will be fit to set out where they are to remain permanently. —[Cultivator.]

THINGS A FARMER SHOULD NOT DO.—A farmer should never undertake to cultivate more land than he can do thoroughly; half tilled land is growing poorer—well tilled land is constantly improving.

A farmer should never keep more cattle, horses, sheep, or hogs, than he can keep in good order; an animal in high order the first of December, is already half wintered.

A farmer should never depend on his neighbor for what he can, by care and good management, produce on his own farm; he should never beg fruit while he can plant trees, or borrow tools while he can make or buy; a high authority has said, the borrower is a servant to the lender.

The farmer should never be so immersed in political matters, as to forget to sow his wheat, dig his potatoes, and bank up his cellar; nor should he be so inattentive to them as to remain ignorant of those great questions of national and state policy which will always agitate, more or less, a free people.

A farmer should shun the doors of a bank, as he would an approach of the plague or cholera; banks are for men of speculation, and theirs is a business with which farmers should have little to do.

A farmer should never be ashamed of his calling; we know that no man can be entirely independent, yet the farmer should remember, that if any one can be said to possess that enviable distinction, he is the man.

No farmer should allow the reproach of neglecting education to lie against himself or family; if knowledge is power, the beginning of it should be early and deeply laid in the district school.

A farmer should never use ardent spirit as a drink; if, while undergoing severe fatigue, and the hard labors of the summer, he would enjoy robust health, let him be temperate in all things.

A farmer should never refuse a fair price for any thing he wishes to sell; we have known a man who had several hundred bushels of wheat to dispose of, refuse 8s. because he wanted 8s. 6d., and after keeping his wheat six months, was glad to get 6s. 6d. for it.

A farmer should never allow his woodhouse to be emptied of wood during the summer months; if he does, when winter comes, in addition to cold fingers, he must expect to encounter the chilling looks of his wife, and perhaps be compelled, in a series of lectures, to learn, that the man who burns green wood has not mastered the A B C of domestic economy.

A farmer should never allow his windows to be filled with red cloaks, tattered coats, and old hats; if he does, he will most assuredly acquire the reputation of a man who tarries long at the whiskey, leaving his wife and children to freeze or starve at home.

There are three things of which the man who aims at the character of a prosperous farmer will never be niggardly—manure, tillage, and seed; and there are three things of which he will never be too liberal—promises, time, and credit. W. G.—[Genesee Farmer.]

DRAINING.—Principles to be ever kept in mind by the tillage-farmer are to keep his land rich and clean. The first in the order of these principles, and an essential one to be regarded in cold and humid countries, is to keep the land dry.

While a certain portion of water is essential to vegetation, an excess of it may prove greatly injurious. In the colder countries an excess of water is one of the main causes of infertility, and a primary object of the husbandman there is to carry it away from the ground.

The water which falls from the atmosphere does not sink to an indefinite depth or to a great depth in the earth. It is either retained at or near the surface where it falls, and whence it is evaporated, or it finds its way to a lower level, by channels upon the surface, or in chinks of rocks, or beds of gravel, sand, and other permeable substances beneath the surface.

The purpose in draining is, when water stagnates at or near the surface, or when, having penetrated to pervious substances below the surface, it is finding its way to a lower level, to confine it to a determinate channel, and carry it away by some convenient outlet, in order that it may not overflow or saturate the soil.

The substances through which water finds its way with facility are the looser earths, sands, and gravels, the crevices of rocks, and beds of loose or decomposing stones: the substances which resist its progress are clays and the harder rocks.

When the soil rests on a retentive subsoil, whether of clay or pervious rock, it forms a species of reservoir for water, absorbing and retaining it. The object of the drainer in such a case is to give egress to the water in fixed channels or drains. This is partly effected by the common ditches of the farm, partly by the open furrows of ridges already described; and, when these are insufficient, by cutting trenches in the hollows, or where best suited to effect the purpose. These trenches are either left open, or they are filled to a certain depth with small stones or other substances, through which the water may percolate; and then they are covered again with earth and soil, so that the plough may pass over them in tillage.

When water overspreads the surface, or is absorbed by the soil, and is unable to penetrate to the looser strata below, the carrying it away in channels is termed *surface-draining*. When it has already penetrated into the earth, and is contained in reservoirs there, or is finding its way to a lower level through permeable substances below the surface, the confining it to a fixed channel is generally termed *under-draining*. These two purposes of the drainer are constantly combined in practice, but yet they are in some degree distinct. It is the intercepting of water below the surface that constitutes the most difficult part of draining, and which requires the application of principles which it is not necessary to apply in the case of surface draining.

If we shall penetrate a little way into the looser portion of the earth, we shall generally find minute stratification, consisting of gravel, sand, or clay, of different degrees of density. These strata are frequently horizontal, frequently they follow nearly the inclination of the surface, and frequently they are broken and irregular. Sometimes the stratum is very thin, as a few inches in thickness, and sometimes it is several feet thick; and sometimes the traces of stratification disappear, and we find only, to a great depth, a large mass of clay or other homogeneous substance.

When these substances are of a clayey nature, water finds its way through them with difficulty; when they are of a looser texture, water percolates through them freely. These, accordingly, form the natural conduits or channels for the water which is below the surface, when finding its way from a higher to a lower level.

When any bed or stratum of this kind, in which water is percolating, crops out to the surface, the water which it contains will flow out and form a burst or spring, oozing over and saturating the ground, as shown in figure 1, which represents a section of the ground, from C to D.

When water is, in like manner, percolating through one of these pervious strata, and meets any obstruction, as a rock or bed of clay at A, fig. 2, it is stopped in its progress, and, by the pressure of the water from a higher source, it is forced upwards, and thus saturates the superjacent soil, as from D to E, forming springs, or a general oozing.

In either of these cases, and they are the most frequent that occur in practice, the object of the drainer is to reach the water in its subterraneous channel before it shall arrive at the surface, and to carry it away in a drain.

By cutting a drain at A, fig. 1, the water of the stratum of sand, CE, is cut off before it reaches the surface at C, where it forms the swamp CD.

In like manner, in fig. 2, by forming a drain at C or F, the water is cut off in its channel AB; and thus, in relieving the pressure from the higher source, by giving egress to the water through the drain, the cause of the wetness from E to D is removed.

In looking at the sloping surface of any tract of ground, as a field, in which there is an oozing or bursting out of water, we shall generally distinguish the line where the wetness begins to appear on the surface, extending over a considerable space, *x x x x x*, fig. 3, the effects appearing in the wetness of the ground farther down the slope, as *y y y*. The line where the wetness begins, and which is generally rendered perceptible by the change of color of the soil, the tendency to produce subaquatic plants, and other indications of wetness, marks for the most part nearly the course which the line of the drain should follow. By cutting a drain nearly in this line, as from G to A, and from L to A, sufficiently deep to raise the porous stratum in which the water percolates, we shall intercept it before it reaches the surface, and by carrying it away in some convenient outlet, AB, remove the cause of wetness.

This accordingly forms, in the greater number of cases, the rule adopted in practice for the laying out of drains upon the surface; the line is drawn nearly at or a little above the line of wetness, or, to use the common expression, between the wet and the dry.

Should the line of drain be drawn too much below the line of wetness, as at G, fig. 1, then the trench would fail to intercept the water; and further, if it were filled with earth, stones, and other substances, in the way to be afterwards described, the whole, or a part, of the water would pass over it, and the injury be unremoved.

Again: should the line be too much above the line of wetness, as at H, the drain would fail to reach the channel of the water, and so would be useless.

It is for this reason that, in common practice, the rule is to draw the line of the drain nearly between the wet and the dry, or a little above it, taking care to give it the necessary descent, and to form it of sufficient depth to reach the pervious bed or stratum in which the water is contained.

But as water may arrive at the surface in different ways, and the wetness be produced by different causes, so variations from this rule of lining out the drain may be required, and the judgment of the drainer is to be shown in adapting the course of his drain to the change of circumstances.

Sometimes, in a hollow piece of ground, feeders may reach the descent, as in fig. 4; and the water may be forced upwards by the pressure from each side of the hollow, and thus form the swamp from A to B. It may not be necessary here to cut a trench on each side along the line of wetness at A and B; a single trench, C, cut in the hollow, and giving egress to the water, may relieve the pressure and remove the swamp.

Sometimes upon a sloping surface, one pervious stratum, in which water percolates, may produce more than one line of springs, as B and A, in figure 5. Here a single drain cut at B will remove the cause of wetness at both swamps, without the necessity of the drain at A.

And, in practice, it is well to wait to mark the effects of a drain cut in the higher part of the slope to be drained, for these effects often extend further than might be anticipated, removing springs, bursts, or oozings, at a great distance.

On the other hand, a single swamp, as from B to A, in figure 6, may be produced, and yet one drain at B may be insufficient to remove it. In this case, the water being brought to the surface by more than one channel, it is necessary to form several drains to reach the several beds in which the water is contained, as at B, C, and D.

These examples will show, that one rule, with respect to the laying out of drains, is not applicable to all cases, but that the drainer should adapt his remedy as much

Fig. 1.

Fig. 2.

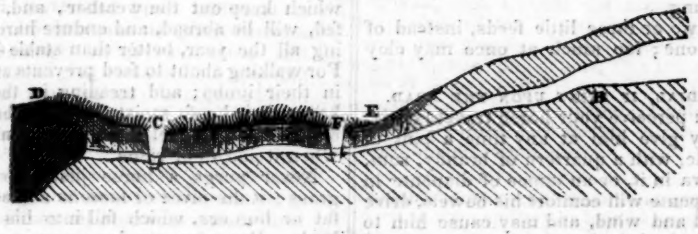


Fig. 3.

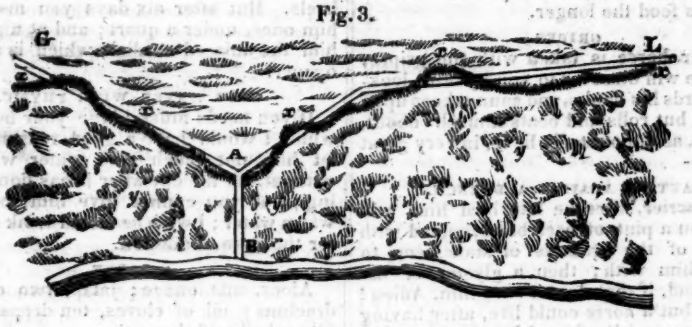


Fig. 4.

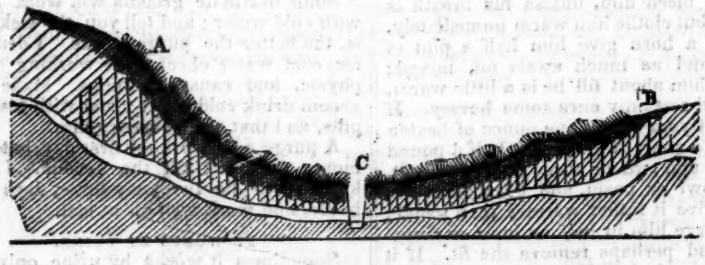


Fig. 5.

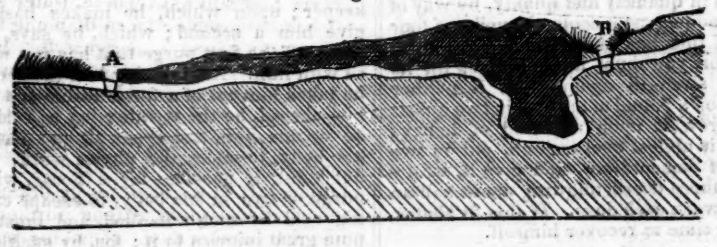
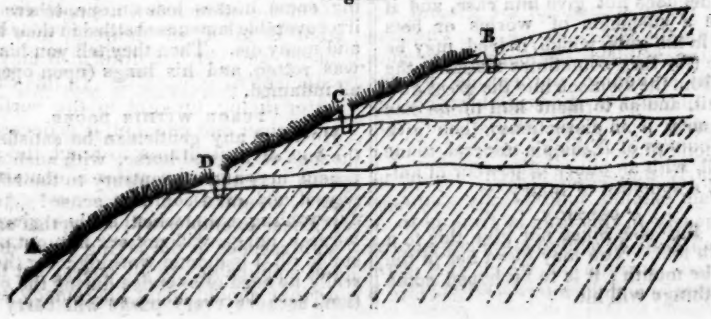


Fig. 6.



as possible to the cause of injury. One object, however, to be aimed at in all cases of under-draining, is to reach the bed, channel, or reservoir, in which the water is contained.—[Cultivator.]

The Gentleman's Pocket Farrier: showing how to use your Horse on a Journey, and what Remedies are proper for Common Accidents that may befal him on the Road. By F. Tuffnell, Veterinary Surgeon. [Continued from page 88.]

A GREAT COUGH.—THE CURE.

If his cough continue three days, you must take another pint of blood from his neck, and try to remove it with abler medicines. Therefore, to keep it off his lungs, give him, just before you go to bed,

Liquorice powder, an ounce; sweet oil, a spoonful; Æthiop's mineral, an ounce; balm of sulphur, half an ounce; made into a ball with a little honey.

Clothe and keep him warm. Repeat the ball next night, which will be sufficient to cure any new gotten cold or surfeit.

KNOTTED BETWEEN THE JAWS.—THE CURE.

Feel between the jaws; and, if his kernels are swelled, do not let the farrier cut them out with a pair of red-hot scissors (as some of them do), but dissolve them with two or three or more turnip poultices, and continue the aniseed cordial, till he is well.

If the almonds of a man's ears were down, that is, if the glands were swelled, and the surgeon proposed to cut them out for a cure, you would treat him with great contempt for his ignorance. It is the same with respect to a horse.

Note. The horse's throat ought to be kept warm with cloths, till the swelling is either dissolved or come to a head; if the latter, any common farrier may open the tumor with a sharp penknife; and when the matter has free discharge, the wound will easily heal, by the use of the horse-ointment applied warm.

I will next mention the eyes; for it is as bad for a horse to be blind as to be lame.

A COLD IN THE EYES.

When a horse has got cold, it sometimes falls into his eyes, which you may know by the symptoms before mentioned, at page 88, a running or a thick glare upon them; put your hand to his nostrils, and if you find his breath hotter than usual, it will then be necessary to take a little blood from his neck.

A CAUTION IN BLEEDING.

It is a common thing with some farriers to take two, three, and sometimes four, quarts of blood away at one time. I am very much against that practice, because you rob a horse of more animal spirits than you can restore in a long time, without much rest and high feeding: the latter of which is diametrically opposite to the cure.

BLEED BY MEASURE.

Therefore, a pint, or a quart at most, unless it is very thick or very hot, will be sufficient; it is safer to take a gallon at five or six bleedings, than two quarts at once, for the reason above. Let me advise you, also, to take it by measure, I mean in a pint or a quart pot; for when you bleed at random upon the ground, you never can know what quantity you take, nor what quality his blood is of. From such violent methods, used with ignorance, proceed the death of half the horses in the nation.

What proof must a farrier, a groom, or a coachman, give of his skill, to administer to a horse a comfortable drink, as they call it, composed of diapente, long pepper, grains of paradise, and the rest of the hot ingre-

dients, at a time when his blood is boiling in his veins! It is like giving a man burnt brandy in a fever. I say, by knowing the true state of your horse's blood, you can better judge what medicines are most proper to give him.

Therefore, a pint of blood, for the first time, is enough; and you may repeat that as you see occasion. But you cannot easily restore, as I said, the blood and spirits you have been too lavish of.

A POULTICE FOR THE EYES.

After you have taken a pint of blood, get a quartern loaf, hot out of the oven, cut away the crust, and put the soft inside into a linen bag, large enough to cover his forehead and temples; press it flat, and bind it on, by way of poultice, as hot as may be, without scalding; at the same time, fasten something of a cloth about his neck, to keep his throat warm. Let the poultice stay on it till it is almost cold, and repeat it once or twice; then prepare the following

EYE-WATER.

Into half a pint of rose or spring water put one drachm of tutty, finely prepared, one drachm of white sugar candy, powdered, and half a drachm of sugar of lead. With a feather put a drop into each eye, mornings and evenings.

A CAUTION AGAINST EYE-POWDERS.

Never blow any powder into the eyes;—always use liquids. The next day, if needful, repeat the poultice; and, if for want of a hot loaf, at any time, make a poultice of bread boiled in milk, continuing the eye-water every day. You may use the turnip poultice, but you must not put grease into it. Never let grease or oil come near the eyes.

A PHILM.—THE CURE.

If a philm grows over the eye, put a scruple of white vitriol and a scruple of roach alum, both finely powdered, into half a quartern of spring water; and with a feather put a drop into the eye, mornings and evenings, and it will eat it clean off in three days or thereabouts; but be not prevailed on to blow flint and glass, pounded together, into the eyes; because the sharp points of the glass wound all the tender blood vessels, and cause an inexpressibly painful inflammation, not much inferior, and full as insignificant, as the farrier's way of burning a thousand holes in a skin with a red hot poker, to cure the farcy. Gelding and docking are but little help to bad eyes.

CAUTION AGAINST BLINDNESS.

Blistering the temples, cutting out the haws, and taking up the veins, weaken the optics, and hasten blindness.

OBSERVATIONS ON WASHY HORSES.

It is observed, some horses carry a good belly all the journey; others part with their food before it is well digested, and scour all the way, which makes them so thin and lank, that they are ready to slip through their guts; they are called washy.

Such horses must be chiefly fed with dry meat; that is, oats and beans, and but very seldom with bran.

They also will eat as much or rather more than other horses, and you should feed them oftener; for, being too soon empty, they require it; and, if you will allow them enough, they will perform a tolerable good journey; but I do not recommend such an one.

REMEMBER TO FEED.

If you do not gallop your horse off his wind, I will venture to say, it is not the journey that hurts him, but your neglect of him when you dismount. Consider, he is tied up, and can have nothing but what is brought to him, for he cannot help himself; and if you do not cause him to be properly attended, a dog that wanders about fares better than the horse that carried you so well; and since he cannot ask for what he wants, you must supply every thing.

DIRECTIONS FOR FEEDING.

When you end the day's journey, fill your horse's belly as soon as you can, that he may go to rest, and he will be the fresher for it in the morning. It is an old observation, that young men eat and sleep better than old; but old horses eat and sleep better than young.

Give two or three little feeds, instead of a large one; too much at once may cloy him.

A CORDIAL, IF FAINT UPON THE ROAD.

If you perceive your horse travel faintly, you may give him at any time a pint of warm ale, with a quartern of brandy, rum, or geneva in it, or an ounce of diapente in it. Diapente will comfort his bowels, drive out cold and wind, and may cause him to carry his food the longer.

GRIPES.

If your horse is taken with the gripes, which he will discover to you by often looking towards his flanks, and cannot keep upon his legs, but rolls and beats himself about, seeming, as undoubtedly he is, in very great misery—

CAUTION AGAINST A DRENCH.

The farrier, after he has bled him, will bring you a pint of beef brine, mixed with a quart of the grounds of stale beer, to drench him with; then a glyster of the same; and, if that do not cure him, Adieu! Nothing but a *horse* could live, after having such a composition forced into his stomach.

THE CURE.—A GLYSTER.

Do not bleed him, unless his breath is very hot, but clothe him warm immediately, and with a horn give him half a pint of brandy, and as much sweet oil, mixed; then trot him about till he is a little warm, which will certainly cure some horses. If it does not your's, boil one ounce of beaten pepper in a quart of milk; put half a pound of butter, and two or three ounces of salt, into a bowl or basin, and brew them together; give it rather warmer than usual; it will purge him in half an hour or thereabouts, and perhaps remove the fit. If it does not, omit half the pepper, and give the same in quantity and quality, by way of glyster; adding, as it cools, the yolks of four eggs. If this has the good effect that is wished for, you must nurse him up till he gets his strength again; but, if neither will do, boil a pound of aniseed in two quarts of ale, brew it upon a pound of honey; when it is almost cool enough, put in two ounces of diascordium, and give it, with a horn, at three doses, allowing about half an hour between each dose. If this fit abates, give him time to recover himself.

WORMS OR BOTS.

If all this does not give him ease, and if you have a suspicion of worms or bots breeding in his guts, which, indeed, may be the cause (for they sometimes fasten in the passage from the stomach into the great gut, and stop it, and so torment him till he dies—I have seen it in dissections), then give him two ounces of Æthiop's mineral, made into a ball, with an ounce of powder of aniseed, and a spoonful of honey.

A CAUTION.

N. B. But you must not give this to a mare with foal. You may bleed her in the roof of the mouth; it is to be hoped some of these things will hit.

STAGGERS.

Do not let your horse stand too long without exercise; it fills his belly too full of meat, and his veins too full of blood. From hence the staggers, and many other distempers.

The cure is to bleed and purge.

GRAZING.

Thin skinned horses, that have been well kept and clothed, should never be turned to grass above three months in the year, viz. from the beginning of June to the end of August.

Thick skinned horses have strong coats, which keep out the weather, and, if well fed, will lie abroad, and endure hard hunting all the year, better than stable horses. For walking about to feed prevents stiffness in their limbs; and treading in the grass keeps their hoofs moist and cool: but they should have a hovel to come to at night, or when it snows or rains.

Never purge a horse just taken from grass; it dissolves or loosens some tender fat or humors, which fall into his legs or heels. But after six days you may bleed him once, under a quart; and at night give him the aniseed cordial, which is a gentle opener.

COLD WATER WITH PHYSIC.

If you needs must purge your horse, for which I would have a good reason given, let him not touch cold water within or without, till the day after it has done working; but you cannot give him too much warm water; I wish he would drink enough, for the sake of dilution.

A PURGE.

Aloes, one ounce; jalap, two or three drachms; oil of cloves, ten drops; made into a ball with honey.

CAUTION AGAINST COLD WATER.

Some obstinate grooms will work it off with cold water; and tell you, the sicker he is, the better the purge works. I deny it; for cold water checks the working of all physic, and causes gripings. Make that groom drink cold water gruel with his next pills, and that will convince him.

A purge may work the first day, but commonly does not till the second. I have known one lie two, nay three, days in a horse, and work well off at last.

IT WORKS BY URINE.

Sometimes it works by urine only, and then the purge steals off unobserved by his keeper; upon which, he makes haste to give him a second; which, he says, is to carry off the first purge that has not worked with him. After giving him the second, he takes him out of a warm stable and trots him abroad, be the weather hot or cold, till he warms him, and opens all the pores of his body, to make the physic work. I do not think it possible for a horse, with a purge or two in his belly, to escape catching cold by such a method, and must impute great injuries to it; for, by such carelessness, and the want of better understanding, some horses lose an eye, others have irrecoverable lameness settled in their limbs, and many die. Then they tell you his liver was rotten, and his lungs (upon opening) all inflamed.

PURGE WITHIN DOORS.

How can any gentleman be satisfied for the loss of a good horse, with such an ignorant account, so contrary to the rules of physic and even common sense! An understanding man, when he has given his horse a purge, will not stir him out of the stable till it has done working; for there is really no need of exercise during the operation, because every purge will carry itself

off, if you keep him warm, and supply him with warm mashes, and warm water as he pleases to drink, and as often.

TO STOP VIOLENT PURGINGS.

When a purge works too long or too strong upon him, which will weaken him too much, give him an ounce of Venice treacle, in a pint of warm ale, and repeat it, if needful, to blunt the force of the aloes.

All the keepers at Newmarket bleed and purge the running horses pretty often; and all the gentlemen in England agree with them in doing so. The reason given for it is, to carry off the humors, which cause their legs to swell and grow stiff, and to clean them. The reason is good, because no horse is fit to run that is not clean: but bleeding and purging weaken both man and beast; besides the hazard of a horse's life in every purge, as I have demonstrated.—Would it not, therefore, be a good amendment to get quit of those superfluous humors another way, so as to prevent stiff and swelled legs, without bleeding and purging! Would not a horse come into the field with better advantage, who, instead of bleeding and purging only once a week, takes a medicine that effectually cleans his body—keeps his legs from swelling and stiffness—mends his wind by opening his lungs, and preserves him in his full vigor? I am sure this can be done with very little bleeding, and no purging; which I would willingly insert here, did it properly belong to this treatise, which (as I said) is intended only for the use and convenience of travellers.

IF A HORSE LOOKS ILL.—THE LAMPARS.—THE CURE.

If your horse, who once looked fat and sleek, is brought to you with a staring coat and hollow flank, open his mouth, look on the roof, and, if the gums next his fore teeth are swelled higher than his teeth, it will hinder his feeding, and will make him fall of his flesh. Let a smith burn it down with a hot iron; that is a complete cure for the lampars.

If that is not the case, you should never cease inquiring, till you have found it; for the horse cannot speak; and if the groom is in fault, he will not tell.

TAKE CARE OF YOUR HAY AND OATS.

If you suspect that the groom does not give him your allowance, it behoves you to take care that you have thirty-six trusses in each load of hay, as well as eight bushels in every quartern of oats, and that they are not brewed; for there are some men that can turn oats into ale.

BROKEN WIND.

If a groom gallop his horse, when he is full of water, he will tell you it is to warm the water in his belly; from hence often comes a broken wind. Make that fellow drink a draught of small beer or water, and force him to run two or three hundred yards upon it: I believe it will cure him of that opinion.

If a horse in his stall, when the groom comes towards him, shifts from side to side, and is afraid of every motion the man makes about him, it is a shrewd sign that the groom beats him in your absence; and a fellow that will beat a horse, will sell his provender.

ROWELS.

There is a wrong judged custom amongst our professors, concerning rowels. If a horse is sick they bleed him, right or wrong—give him a drench, and put a rowel under his belly; without inquiring of his master or keeper what usage he has lately had, which might occasion the illness. Rowels are absolutely necessary in some cases, but are absolutely unnecessary in others, and serve only to disfigure and torment a horse. As for example:

The rowel in the navel for the grease, which you may see in almost all the coach and cart horses about town, is very wrong; because rowels, in a horse that is greased, promote too great a discharge from the blood and animal spirits, which weaken him to a degree of irrecoverable poverty. I have put five rowels in a horse at one time, thinking thus to let the grease run off; but the more the rowels run, the more he runs at the heels, till the texture of his blood was so broken, that I could not recover him. This convinced me it was the wrong way to cure the grease. I have heard it said amongst learned physicians, that too many setons or issues will draw a man into a consumption. In my opinion, rowels will do the same thing by a horse, as they are of the like nature and effect.

THE FARCIN.

The farcin proceeds from a stagnation of blood in the capillary or hair-like vessels, which corrupts, and breaks through into buds, or vents itself at the heels or frush. Colds, hard exercise, high feeding, &c., will occasion this.

RUNNING AT THE HEELS OR FRUSH.

Farriers ignorantly endeavor to stop a running at the heels or frush, by applying bole ammoniac, alum, vitriol, lime-water, and verdigris, which are quite contrary to the cure; for all styptics repel the sharp distillation, which should have a free passage; else the limbs will swell to a very great degree; and must, in time, fall and burst out again in such a tide as will be hard to stem. For stopping is not curing. See Horse Ointment.

Four parts in five of our farriers maintain that the farcin lies between the flesh and the skin. Why then does not roweling cure it? But it does not lie between the flesh and the skin; therefore, roweling never did, nor ever can, cure it. For example—

Before the buds break out, the veins cord; which is a strong presumption that the distemper hath its origin in the blood; because there is its first appearance. Besides, take a pint of blood from the neck of any horse, whose veins are corded any where about him, and it will show its corruption as soon as it is cold. Now, bleeding checks the distemper; whereas, if you did not bleed, it would break out in every part about him, from the ears to the soles of his feet; even in the corners of his eyes, his yard, and the very inside of his hoofs, or wherever there are any blood vessels.

These demonstrations oblige me to believe the distemper does not lie in the skin, but in the veins; but the most substantial proof is the cure, which I can perfect without touching the buds, or making the least outward application.

A DESCRIPTION OF FIRING.

The generality of our present farriers fire; that is, they draw, with a red hot iron, a circle, like a magic spell, round the buds, burning half through the skin. This, they say, stops the spreading; and is called firing. Then, into every bud they thrust the end of a red hot poker, burning the bud to the bottom, which is accounted by them a complete cure for the farcin; but I should rather take it to be a description of the last punishment allotted for wicked men. Who can imagine that a red hot iron would correct the blood, and cure a distemper?

To cure the farcin—take half an ounce of Roman vitriol, boiled in a pint of chamberley, two pennyworth of turpentine, two pennyworth of bole ammoniac, and a handful of rue. Give it inwardly, and repeat the dose, if requisite.

A DESCRIPTION OF THE GLANDERS.

The glanders proceed from severe, repeated colds, such as are taken at winter grass; and, by lying long upon the lungs and glands, corrupt the blood, and produce that unhappy consequence of running at the nostrils.

The mourning of the chine is downright poverty of flesh and blood, which the severity of the distemper, that is, cold, brings on, and may be compared to the condition of a lean man in a consumption; but there is no such thing as the running of the spinal marrow at the nostrils, as many affirm; for the vessel that contains the spinal marrow is composed of the same coats that inclose the brain, and is continued from the brain, without disjunction, through the neck and shin bones, till it ends in the dock, so that there is not the least communication between the spinal marrow and the nostril; it is the same in the human body.

TO DISCOVER A FEVER.

Would you know when a horse is in a fever, there is a pulse a little above the knee, in the inside of his leg, which may be felt in thick skinned horses; but the best and surest way is, to put your hand to his nostrils, and discover it by the heat of his breath.

GLYSTERS.

There is a time, in some fevers, when it is dangerous to bleed or purge; then glysters are of excellent use,—I must say, absolutely necessary; but not one in a thousand will give themselves the trouble to relieve the poor sick creature in that way; for two reasons—first, few people know when a horse is in a fever.

A GLYSTER IN A FEVER.

Secondly, they seldom are provided with so material an instrument as a glyster pipe; therefore, for the sake of the creature, and those that love him, the following glyster, in a fever, is as good as any, and as little trouble. But first, bespeak, at a pewterer's, a pipe, eight or ten inches long, with a bore large enough to receive the end of your finger, and a rim at one end of this pipe, that what you tie on may not slip off. Then boil a spoonful of oatmeal in two quarts of water, together with two ounces of senna, and half a pound of brown sugar, half a pint of sweet oil, and a handful of salt. Get a bladder at an apothecary's or butcher's, that will contain the above said quantity, and tie its neck to the pipe: pour the glyster with a funnel through the pipe into the bladder, and give it blood warm, setting the horse's hinder parts highest. Keep him quiet in the stable till he voids it; the longer it stays with him the better; but you need not tie his tail down to his fundament: it is ridiculous to think that will detain it a moment.

SWELLED NECK.

If a farrier, in bleeding, miss the vein, do not let him strike his fleam a second time into the same place; because it sometimes makes the neck swell, and proves troublesome to cure; and as the extravasated blood infallibly makes the neck swell, and the jugular vein rot quite away, from the orifice up to the jaw bone, and down almost to the shoulder, (which may prove the loss of your horse,) he should take care, in the pinning, that he leaves not a drop of blood between the flesh and the skin.

BLEED HIGH IN THE NECK.

(Note. The nearer the throat you bleed

him, the better. The vein is not so apt to swell into a knot, as if bled lower.)

The turnip poultice makes the best cure; but if the neck should happen to be extremely bad, and a tumor should form, when you feel matter fluctuate under your finger, it is best to open it and give it a free discharge, and dress it with the horse ointment, keeping the neck elevated.

A horse after bleeding should not eat hay for half a day, lest the motion of the muscles should bring on an inflammation and swelling.

DOCKING.

It seldom happens that we dock a horse upon a journey; but permit me to give a caution on that subject, here. In docking a horse, never put under his tail the knife or instrument which is to cut it off; because you then must strike the tail, which will bruise it, and it will be apt to mortify, which is the reason so many horses die with docking; but lay his tail next the block, and, at one blow, drive the knife through a joint if possible; stand prepared with a hot iron, to sear the end of a dock, and stop the bleeding.

NEVER DRAW A SOLE.

Never draw a horse's soles on any pretence whatever. There is no hurt or wound in the cask of the foot but may be come at; and it is the reverse of a cure for a founder, though the farriers always do it. A man may help a foundered horse, but I never knew one cured.

I have now mentioned most of the common accidents, and have taken care, that, under some of those heads, you may find a great deal of help, by the analogy they have to one another; in short, I have mentioned more than is necessary on a journey.

[From the New-England Farmer.]

COLD WEATHER.—The facts stated by Mr. Breck, in your paper of January 14, respecting the difference of cold on the high and low land in still cold weather, are undoubtedly true, although I am not aware that it has been generally known. I have conversed respecting it for many years, but have found almost all persons incredulous.

My house is elevated from fifteen hundred to two thousand feet above tide water. And I learned from my feelings, many years since, that in still cold weather, the cold in the night and early in the morning was much more intense in the valleys than on the high lands. I have many times left my house at sunrise, when the cold was not uncomfortable, and in an hour descended a thousand feet, where I found the cold very intense. I have as often, in very cold still evenings, when the weather was constantly growing colder, ascended from the same valley, when I was almost frozen, and constantly as I ascended grew warmer until I came to my house.

Every person acquainted with the business of making maple sugar, knows that frost is necessary to the manufacture of it. The sap will not run from the tree more than twenty-four hours after it is thawed, until it is again frozen. In the sugar season, which is in this country from the middle of March to the middle of April, the trees are generally frozen in the night and thawed in the day, when the sap runs. In one fourth part of the year, there are many days in succession in which no sugar is made very near me from the want of frosts. Whereas, at the same time, people living not more than six hundred rods distant, but on ground a few hundred feet lower, make it constantly with great success. This happens only in still, calm weather. This circumstance cannot lie, however variant and improper the construction of thermometers may be.

I now come to the observations made on different thermometers, and I can only compare those in this vicinity, except so far as they have been communicated from different places this winter.

I will first remark, that my thermometer generally indicates a less degree of heat, or greater degree of cold, than the thermometers in the valleys in this vicinity. The average difference for this year is six to seven degrees.

I see it stated in your paper of Jan. 14, that the thermometer at Montpelier, in Vermont, stood on December 26th, in the morning, at 28 degrees below zero. Of this I had heard before. Mine, which is also Fahrenheit, stood at 11 degrees below; a difference of 17 degrees. I am eleven miles from Montpelier, and elevated probably twelve or fifteen hundred feet above that place.

At 9, P. M., of January 3d, my thermometer was at 20 degrees, and at sunrise of the 4th, it was 23 degrees below zero. At Montpelier that morning, the mercury was frozen, as it was also in another valley four miles from me. In another valley, in a different direction, five miles from me, the thermometer was 40 degrees below zero. This last thermometer, by a comparison, ranges exactly with mine. The two last mentioned valleys are, probably, a thousand feet below me. On the morning of January 11th, my thermometer was 14 degrees above zero. In the valley five miles from me, it was 11 degrees below at the same time, and the same at Montpelier, a difference of 25 degrees. On the morning of January 12, mine was 16 degrees above zero. In the valley five miles from me, it was 10 below; a difference of 25 degrees.

Mr. Breck put his thermometer, on the morning of Jan. 10, at 14 degrees below zero; mine was seven above, although two degrees further north.

After the cold morning of the 4th, my thermometer the five succeeding mornings stood as follows:

Jan. 5, zero. For a fortnight, commencing before the cold weather, and ending after it, the air was unusually still.
6, 14 below.
7, 19 do.
8, 12 do.
9, 1 do. The thermometer on this day, Jan. 9th, was 10 degrees above zero at 1 P. M.

My thermometer is at the north end of my house, facing directly to the north, and three feet from the ground.

During the last six years the thermometer has been lower two or three times in each winter, in still cold weather, in the valleys, than mine was at the same time. But the difference that has come to my knowledge, has never before this winter been more than thirteen degrees.

There has been but one colder morning here than that of the 4th of January for the last six years, and that was the 19th of January, 1833. The cold was then 26° below zero.

As to the cause of the unusual depression of the mercury in the valleys, which Mr. Breck seeks to learn, I do not profess to have much knowledge. However, I am willing to show you my opinion.

It is known that the air is generally heavier, and more dense in the valleys, than on the adjacent high lands, and it is therefore capable of containing more cold and frost.

As to the other branch of Mr. Breck's inquiry, "Whether, if there had been any wind the cold Sunday morning, there would have been any difference between the temperature of the hills and valleys?" This question I answer in the affirmative, without any hesitation. But the difference would have been the other way, if there had been much wind. It is a question that cannot be settled by theory, but it may by facts. And the facts which I shall adduce will show that the cold, in a cold windy time, is greater on the high lands than in the valleys, by several degrees.

From observations I have made for several years past, I have found that my thermometer has stood in the morning in very cold windy weather, eight or ten degrees lower than those in the valley before alluded to. Indeed, whenever the thermometer is below the freezing point, and the wind strong, the cold is greater here than it is in the valleys. But the extent of the difference depends on the intensity of the cold, and the strength of the wind. And a greater difference in such cases than ten degrees has not come within my knowledge, and then the thermometer on the high lands was 20 and 22° below zero, and that in the valleys 10 and 12° below.

I think the cause of this difference is not so easily accounted for as in the other case. If it should be said, as I have often heard said, that the high wind blows the dense cold air to the high lands, how would the less dense and warmer air descend into the valleys to take its place? This would be against the laws of gravitation.

I have said that the air being heavier and more dense in valleys is capable of containing more cold and frost. And I frankly confess I am somewhat a heretic with respect to the theory that cold or frost is a mere negative of heat. From a long course of observation on the effects of frost on the various phenomena connected with it, I have been led to the opinion that frost is something positive, something material, capable of attracting and being attracted. And I think the various phenomena of frost are more easily and satisfactorily explained by this hypothesis than on the other.

I know that air, being a conductor of heat, will sometimes when rapidly applied to a substance conduct off the heat, so as to produce frost. But this does not prove that frost is not material. It only proves that when the heat, the antagonist principle of frost, is drawing off, frost as a substance makes its appearance.

In the spring and fall, when we are afraid, from the coldness of the day, that there will be frost, if a brisk breeze springs up towards night or in the evening, our fears cease, and no frost ensues.

Every person, who makes much observation respecting the effects of frost, knows that in the fall, when cold weather commences, that in a field of potatoes, a slight breeze of air will protect the hills a little elevated above the others, while those hills not more than three feet from them, and depressed six inches below them, so that they cannot feel the influence of the breeze, are much injured — the higher hills breaking the force of the breeze upon the lower.

Every person in Vermont knows that the frost falls later in the spring, and earlier in the fall, in the valleys than on the hills, unless there be a fog in the valleys to prevent it. And there is almost always less motion in the air in the valleys than on the high

lands. Why in these cases should not the brisk air on the hills conduct off the heat so as to prevent frost, while it lights on the lower ground, when there is scarce any motion in the air.

I will mention one more fact in connexion with this subject. Some years since I saw in the paper that a person hung a pail of water on a favorite fruit tree, while in blossom, to protect it from frost. At the time, I supposed that if it could have any effect it must be by creating a miniature fog.

Now for the fact — a few years since I was deliberating where I should place some early potatoes for seed, so as to keep them from frost, and from being mixed with other potatoes. I was advised to put them into a cellar, where there was a water cistern; this was the coldest cellar under my house. But I adopted the advice, and have pursued the practice ever since. On the 4th of January the water froze over in the cistern, and within two days the ice was from one to two inches thick. I then thought of my potatoes, and supposed them worthless. But they were not touched by the frost. Was this because the air conducted the heat from the water to the potatoes? If so, why did it not conduct the heat from the potatoes? Was it not rather that the water attracted the frost, if a material thing, with greater power than the potatoes possessed?

I have stated the foregoing facts, that you and your readers may make the most and the best of them, and not to support any vague theory of my own. And as it is not my intention nor wish to disturb the long repose of the theory alluded to, I will stop here, and subscribe myself, your obedient servant, A VERMONTER.

Jan. 14, 1835.

P. S. Since writing the foregoing, the New-England Farmer of Jan. 21st has come. And to your annoyance, and possibly that of your readers, I have read the communication of A. G. in it, upon which I wish to submit a few remarks.

A. G. says, that the greater density of the air is the cause of the greater degree of cold in the valleys. I certainly shall not quarrel with this, for it is the only reason I have assigned for it in calm weather.

But I am not satisfied with his reasons for that effect. He says that air is a great conductor of heat. That is true. But how does this, by itself, account for the greater degree of cold in the valleys. From what, at such times, does it conduct it? As to this we are left in the dark. It may, if possible, conduct it from the frozen earth, colder than itself. But at any rate, the heat which it conducts from the frozen earth, must be in very small quantities, and a very cold kind of heat.

Although the air frequently robs us, in these hyperborean regions, of more heat than we well know how to spare, yet I doubt, whether we ought to charge all the inconvenience we feel from frost to the air.

A. G. says in answer to Mr. Breck's second question, that he thinks if there had been wind on Sunday morning there would have been very little difference in the cold, in the valleys and on the hills; and adduces theoretical arguments in support of his opinion. But these arguments are in direct opposition to the facts I have stated — facts well known in Vermont since the multiplication of thermometers.

The causes assigned for cold and frost are, generally, mere theory, and present the finest topics imaginable for disputation, as they cannot be brought to the "searching" test of facts.

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By the Editor.—The facts above stated by our respected correspondent, are, some of them, new to us, and the knowledge they convey may be of much practical utility in agriculture and rural economy. We do not, however, altogether coincide with him respecting the *causes* of some of the *effects*, which have met the attention of his observing mind. For instance, we believe that cold or frost is nothing but the want of or rather a less degree of heat. Likewise, we are of opinion that the heat given out by water while freezing saved his potatoes from frost. But we have not at present time nor room to give the reasons for our belief; and this is not of much consequence, since facts are of much more importance than theories. We hope, some time, to resume the subject, with allusion to the valuable facts with which we have been obliged by "A Vermonter;" and solicit the continuance of his favors of a kind similar to that for which we are already much his debtor.

BEES.—These useful little creatures require some attention in the winter. Many hives are lost, and we believe it is owing more to the want of proper care and attention, and the want of good management, as to the construction of the hives, shelter, &c. than to any ills that naturally attend them. Some leave their hives exposed to storms and sunshine, heat and cold, without any protection in all the changing seasons of the year; and as they have been successful at times, they laugh at the thought of any different management; and if they are unlucky, they think it was so fated, and that they could not prevent it. It is with this as it is with many other branches of rural economy, agriculture, &c. Some suppose that they know so much that they can learn no more, and perhaps they are right in this supposition, for none are so deaf as those that will not hear, and none so limited in their knowledge as those that are content with what they possess.

We asked a man to subscribe for the Farmer, he said that we could teach him nothing; seeing that he kept bees, we told him that we could probably give him some useful information on that subject, but he thought differently, and immediately observed that his bees did not swarm last summer; we informed him that we had one hive that swarmed six times, and they were all large swarms excepting one; he was surprised that other bees should do so much better than his own, and inquired the cause; we informed him that we put two large swarms together, and that such hives were much more profitable than the same number of bees in separate hives. They procure more honey in summer, and eat less in winter, in proportion to their numbers; they will be much more likely to live through the winter; they are better able to defend themselves against their enemies; and they will swarm earlier, and send out more and larger swarms. So far from knowing how to manage bees in this manner, and the advantages resulting from this management, it seemed to him like a new thing under the sun. We name this circumstance, as this man is a fair specimen of thousands who honestly think that they cannot learn any thing new, when the only reason is because they never thought of many useful things that they might learn, if they would give their attention to them instead of following the tradition of their fathers, and rejecting the light of science, reason and experience. We name not these things as a censure upon the motives and dispositions of our fellow men, but upon their practice. But turning from the biped race, to the *many peds*, after this digression. As to the best methods to be pursued generally, for the protection of bees in different seasons, we may give our views and those of others at another time, in the appropriate season.

See to your bees; have you taken a peep at them since the cold *snap*, in order to see whether they are dead or alive? Sometimes the copious perspiration of bees congeals upon the sides of the hive; we have seen hives lined with ice formed in this manner. Moderate weather, together with the heat of the bees, causes this ice to melt, and run down to the bottom of the hive, and the bees become suffocated; many valuable swarms are lost in this manner; and the best swarms are most liable to suffocation, as they are the largest and need the most air, and they generally have the least, as such hives are usually nearly or quite filled with comb and honey. As the heat caused by the bees assists the melting of the ice, the water will sometimes freeze as it runs to the bottom of the hive, and falls below that heat without any change in the weather; again, when the swarm of bees is too small to produce any heat of consequence, the ice will melt in the heat of the day, (if such a thing there be in our cold winters,) and congeal at the bottom as it grows cold towards night. This is much more likely to happen when the sun shines upon the hives. When a hive is exposed to the weather, the door is often filled up with snow so that but very little fresh air can be admitted, which may occasion the loss of a large swarm.

Some will disregard these observations, because bees have survived through the winter buried several feet deep in snow, or buried that distance below the surface of the earth in the fall; but a few instances establish no general rule. Perhaps circumstances were favorable; there might have been but a few bees in a large hive. Large swarms have been destroyed by remaining in close hives thirty-six hours. Sam Patch jumped from a great distance into the water several times without injury. Is that any reason that others should risk their lives and follow his example? Poor Sam himself *kicked the bucket* in that way at last.

The best way to prevent bees becoming suffocated in winter, is by the construction of their hives. There are many ways in which they may be made in order to answer that purpose. We made an improvement in hives last summer, adapted to most all kinds, which we think will prevent the loss we have named; it costs a mere trifle more, is very simple, and is attended with many important advantages; we will describe it in another number — say next month.

To prevent the suffocation of bees, bore several holes with a gimlet into the hives a little way above the bottom. If a swarm be large, they can bear a little exposure to the cold, and the hive may be raised one fourth of an inch from the board, and thus afford the bees fresh air for respiration when the door is barred up with ice. — [Yankee Farmer.]

AZOTE IN SEEDS.—Many seeds, as rice, yield, on distillation, says M. Gay-

Lussac, very acid products, whilst beans and most of the leguminous kind furnish ammonia. He concludes that, as a general rule, a grain, divested of its envelope, is formed of two parts, one of which is vegetable, giving an acid, and the other producing an ammoniacal product. All seeds, such for example as are gluey, or capable of being made into paste, contain a large proportion of azote. Wheat, therefore, is a curious illustration of this law.—[Scientific Tracts.]

[From the American Journal of Science and Arts.]

A live Snake suspended by Spiders.

BATAVIA, N. Y., Sept. 30, 1835.

Sir,—In the "Spirit of the Times" of this village, of the date of Aug. 26, 1834, I published over the signature of "A Witness" an account of a *snake* found suspended by spiders' web, by the tail, in the wine cellar of a gentleman in this village.

A gentleman who also saw and examined the phenomenon, promised to send you a drawing and account of it. Whether he has done so or not, I do not know. And as the story has been treated as a fable by some of the papers, I send you enclosed the account above mentioned, and a correct drawing, (though rough and done in haste,) made by James Milnor, Jr. Esq., a clerk in the Holland Company Land Office.

The gentleman in whose wine cellar the snake was found, is the Hon. David E. Evans, agent of the Holland Land Company, who requests me to forward to you the drawing and account, which he pronounces to be accurate.

Mr. Evans, Mr. Milnor, Mr. Mix, Doct. Van Tuyl, and a great number of other gentlemen, examined this subject *critically* on several different days, while the snake was yet alive, and all concur in the accuracy of the account.

I hope you will procure a correct engraved cut of the drawing, and publish it with the account in your journal. And if you do, you are at liberty to use all the names mentioned in this letter, or to publish it at length, if you think proper.

Most respectfully, your ob't servant,

S. CUMMINGS.*

The following is the account alluded to in the above letter:

On the evening of the 13th inst., a gentleman in this village found in his wine cellar a *live Striped Snake*, nine inches long, suspended between two shelves, by the tail, by spiders' web. The snake hung so that his head could not reach the shelf below him, by about an inch; and several large spiders were then upon him, sucking his juices. The shelves were about two feet apart; and the lower one was just below the bottom of a cellar window, through which the snake probably passed into it. From the shelf above it, there was a web in the shape of an inverted cone, eight or ten inches in diameter at the top, and concentrated to a focus, about six or eight inches from the under side of this shelf. From this focus, there was a strong cord made of the multiplied threads of the spiders' web, apparently as large as common sewing silk; and by this cord the snake was suspended.

Upon a critical examination through a magnifying glass, the following curious facts appeared: The mouth of the snake was fast tied up, by a great number of threads, wound around it, so tight that he could not run out his tongue. His tail was tied in a knot, so as to leave a small loop, or ring, through which the cord was fastened; and the end of the tail, above this loop, to the length of something over half an inch, was lashed fast to the cord, to keep it from slipping. As the snake hung, the length of the cord, from his tail, to the focus to which it was fastened, was about six inches; and a little above the tail, there was observed a round ball, about the size of a pea. Upon inspection, this appeared to be a green fly, around which the cord had been wound as the windlass, with which the snake had been hauled up; and a great number of threads were fastened to the cord above, and to the rolling side of this ball to keep it from unwinding, and letting the snake down. The cord, therefore, must have been extended from the focus of the web, to the shelf below, where the snake was lying when first captured; and being made fast to the loop in his tail, the fly was carried and fastened about midway, to the side of the cord. And then, by rolling this fly over and over, it wound the cord around it, both from above and below, until the snake was raised to the proper height, and then was fastened, as before mentioned.

In this situation the suffering snake hung, alive, and furnished a continued feast for several large spiders, until Saturday forenoon, the 16th, when some persons, by playing with him, broke the web above the focus, so as to let part of his body rest upon the shelf below. In this situation he lingered; the spiders taking no notice of him, until Thursday last, eight days after he was discovered; when some large ants were found devouring his dead body.

A WITNESS.

As this extraordinary case has been doubted, we think it fair to annex the account of another witness, which will be seen to be similar to that of Judge Cummings, but not identical.—*Ed.*

NEW-YORK, Aug. 26, 1834.

Dear Sir,—Enclosed I take the liberty of sending you a rude sketch of a curiosity, which came under my observation a short time since. A gentleman residing in the village of Batavia, N. Y., on going into his wine cellar, discovered a striped snake, about ten inches in length, suspended by and from the web of a spider, in a manner precisely similar to the enclosed sketch. From a survey of the premises, it would appear that the snake had taken up his abode upon one of the shelves in the cellar, when the spiders

(for there are three which appear to be engaged as partners in the business) first formed the design of making him their captive. For this purpose they formed a large web upon the under side of a shelf directly above the snake, from which they descended, and made fast a large number of fibres to different parts of his body, bracing them in every direction, so as to prevent his escape, and render their operations more secure; they next proceeded to muzzle him, by winding a web many times around his head, so as entirely to deprive him of the use of his mouth. Having thus secured him, they next set to work to suspend him from their web. You will observe a knot in the tail of the snake. How this was formed I am unable to say; but certain it is, that the spiders took advantage of it, and by winding the knot with a web, prevented the possibility of loosing it. They then apparently proceeded to attach a large number of fibres, running from various parts of the web above, to the loop formed by the knot, which they glued and fastened together by winding them with another fibre, thus forming a strong cord. This done, the most difficult part was yet to be performed, and this was to swing him clear from the shelf. To do this, they procured a large *blue fly*, (2,) which they made fast to the web or cord, and by continuing to roll the fly over in the web or cord, and making it fast to each turn, they were enabled to swing the snake about three inches clear from the lower shelf. The snake was alive and active when discovered, and five days after, when I was there last, he was still living, suspended in the manner above described. During the day, no spiders were visible in or about the web, but at night there were three, much smaller than the common fly, seen feeding upon the body of the snake.

Very respectfully, your ob't servant,

D. LYMAN BEECHER.

The inquiry has been made, whether the snake might not have fallen by accident into a web previously made, and thus have become inextricably entangled.—*Ed.*

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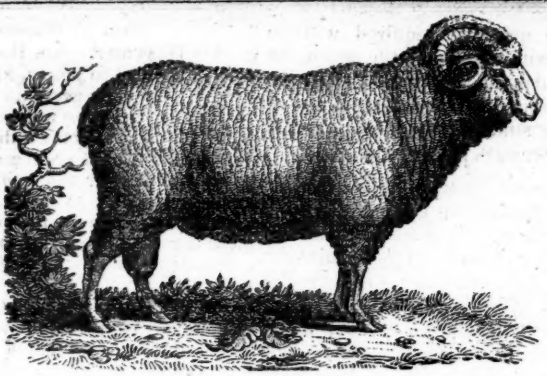
* We understand that Mr. Cummings is first Judge of the Court of Common Pleas in this county, and also Postmaster of Batavia.



[From the Cultivator.]

Don Pedro.—Mr. Buel: I now redeem my pledge, in the last No. of the Cultivator, of giving a representation and history of "Don Pedro." The cut was executed by Mr. Hall, a young artist of great promise, now a resident of this city. It is copied from a copper-plate engraving by Murry, and published in the "Archives of Useful Knowledge," at Philadelphia, in 1810, from which the following history is extracted.

Several gentlemen have promised to have correct drawings made of superior cattle, sheep and swine, now in their possession, which the editors have proposed to have engraved on wood, (of which the above is a specimen,) and published in the next volume of the Cultivator, with an account of their usefulness and superior qualities, &c. &c. Amateur.

Don Pedro was imported into the United States, in the year 1801, and is believed to be the first full-blooded Merino ram introduced into North America.

Mr. Dupont de Nemours, then in France, had persuaded Mr. Delessert, a banker of Paris, to send to this country some of those valuable sheep; and he having been at the head of a commission appointed by the French government to select in Spain, 4,000 Merino sheep out of the number of 6,000, which, by the treaty of Basle, the Spanish government had stipulated to present to France, it is natural to suppose that those which he selected for his own flock, were among the best. Four fine young ram lambs were accordingly shipped, two were intended for Mr. Delessert's farm, called Rosendale, situated near Kingston, on the Hudson river; one was intended for Mr. Dupont de Nemours, who was at that time settled in the vicinity of New-York, and the other was to be presented to Mr. Thomas Jefferson. Mr. Dupont embarked in the ship Benjamin Franklin, on board of which ship the four lambs were shipped, and was unfortunately detained upwards of twenty days in England; his subsequent passage to the United States was long and boisterous, in consequence of which three of the sheep died, and it was with the greatest difficulty that Mr. Dupont preserved the fourth. The ship arrived at Philadelphia on the 16th of July, 1801.

In 1801, Pedro tupped nine ewes at Mr. Dupont's Place near New-York; he was then sent to Mr. Delessert's farm, and served a large flock during the years 1802, '3 and '4. In the course of 1805, Mr. Delessert having determined to rent his farm, and to sell all his stock, the progeny of Pedro were sold at public sale, at reduced prices, to the neighboring farmers, who had no idea of the treasure which was offered to them; being unacquainted with that breed of sheep, they neglected those valuable animals, great numbers of which have perished in their hands, or were sold to butchers; the rest would probably have shared the same fate, had not Chancellor Livingston become acquainted with the existence of those sheep, and purchased at advanced prices some of the ewes, which he put to his fine Merino rams of the Rambouillet stock. Pedro, like the rest of the flock of the Rosendale farm, was sold at vendue, and Mr. Dupont's agent bought him for sixty dollars.

In July, 1805, Pedro was removed to E. I. Dupont's farm, situated in the State of Delaware, near the borough of Wilmington. That gentleman had a very small flock at that time, but was anxious to see that valuable breed propagated in the country, and with a view to attain that end, he offered the farmers of his neighborhood the use of his ram, gratis; they could not be prevailed upon to think much of what was offered to them free of cost; the consequence was, that very few ewes were sent to Pedro during three seasons, and only by way of experiment.

In 1808, however, Mr. Dupont, with a view of increasing his own flock, purchased from the farmers, his neighbors, as many half or three-quarter blooded ewes of Pedro's breed as he was able to collect, which measure raised his character among the farmers. Since that time, Pedro has served every year from 60 to 80 ewes; the vicinity of Wilmington will therefore be supplied with a large stock of fine woolled sheep, and as Mr. Dupont & Co. are erecting works for the purpose, cloth of any fineness may be made.

Pedro is now (1810) ten years old, but very strong and active: he is stout, short and woolly, and of much better form than Merinos commonly are; and even better than that of a ram figured in a superb engraving lately received by the Agricultural Society of Philadelphia from Paris. His horns are large and spiral; his legs short, and he weighs 138 lbs.; his fleece carefully washed in cold water, weighs 8½ pounds, is extremely fine; the staple 1¾ inches long, and lying very thick and close upon his body; it is entirely free from loose coarse hairs, called jarr. Every part of his fleece, moreover, is nearly of equal fineness; even the wool of the hind legs and thighs, which is long and coarse upon many Merino sheep, is short and fine upon Pedro. This point, which, in the case of wool so valuable as that of Merino sheep, is of great consequence, will be transmitted to his progeny, and proves the value of stock derived from him.

Hints on Sheep Husbandry.—It is obvious that housing sheep at night, and providing them, during the day, a shelter from the rain and sun, must preserve and improve the wool; and also essentially conduce to the health, comfort, and preservation of the animal.—[Bakewell.]

I would have sheep winter fed, to the degree of commencing the grass season in good store order, and without having sustained any check, in carcass or wool; and winter sheltered in yards or sheds, as much as the sheep may themselves affect, throughout even the mildest climates of Britain, for neither merino, nor half breed merino lambs, nor indeed those of any other breed, ought to be exposed without some kind of shelter, to the rigors of the winter and early spring; and the sheep, when arrived at their maturity or full strength, will still require the same, with regular and good feeding, if it be intended to force the growth of their fleece, to its utmost weight, and to preserve the quality in its highest degree of condition and fineness.—[Lawrence.]

One of the completest sheep yards I have seen, is that which Mr. Thurlow has made at Gosfield, partly by means of stubble stalks, but the space well enclosed; a large flock may be under cover or exposed, at their pleasure. In the centre is a thick stubble stack, which forms a double shed. He finds it of incomparable use, insomuch as he intends to convert all the straw of his large farm into dung, and to leave off buying bullocks for that purpose.—[Arthur Young.]

The late Gen. Murray's standing folds were equally well contrived, enclosing an area of 57 yards in length, and 20 broad, containing 1,140 square yards. Above 700 ewes were folded in it at night, and for that number it is more than a yard and a half for each sheep. All around it was a shed nine or ten feet wide, and also across the middle, which latter was open on both sides. A rack for hay, placed against the wall, which was boarded, surrounded the whole; and another, which was double, to be eaten out of on both sides, stood along the central shed; under the rack was a small manger, in which the food was given.—[Ib.]

A cool, moderate temperature is more favorable to the production of fine wool, than excessive heat; and were the sheep of Spain, like those of England, unprotected against the effects of climate, I should have no hesitation in saying, that the situation of that country would be, in some respects, worse than that of our own island, and more unfriendly to the growth of a fine even staple. But to the other qualities, the soundness and softness of the fibres, our frequent rains are very prejudicial, unless the sheep be sheltered and protected from their effects.—[Bakewell.]

To preserve all the best qualities of wool in the Spanish breed of sheep, it will be necessary to attend to the three following objects: The first in importance, is the purity of the breed. The next, that the fleece be covered by nature with a copious yolk, or being deficient, that it be supplied by art; nor should the unctious covering of the wool be absorbed by a mixture with the soil on fallows, or washed away by the rain. Lastly, that the sheep

be kept dry, sheltered from the extremes of heat and cold, and their quantity of nourishment regulated.—[Ib.]

The bad effects of water upon the pile, while growing, may be owing to the readiness with which it mingles with the yolk, and carries off a quantity of that animal soap, which is so necessary to the good quality and even existence of the fleece; for if care be taken to prevent this, by the skilful application of tar mingled with butter, which act as repellants to the water, the wool part of the staple which grew after the mixture was applied, contains a sufficient supply of rich and nutricious yolk, and is a much superior sort of wool to those parts of the pile which have been exposed without protection, to the dripping wetness of the wintry season. —[Luccock.]

Mr. Bakewell is so fully convinced of the utility of greasing, that he advises it immediately after shearing, and again in October. In his opinion, the trouble and expense of it, twice a year, will be well repaid by its beneficial effects upon both the carcass and fleece of the sheep, in every part of Britain. He observes, by the first greasing, the wool will be covered and defended from the action of the soil, when the particles are most pulverized and active, and it will be kept soft and moist during the parching heat of July and August; and that he has reason to believe, that the top of the staple of a greased fleece would not become harsh and discolored, which is frequently the case with English wool. Additional and very powerful inducements to spring and summer greasing, are the following: The ointment destroys the sheep tick, and has a tendency to prevent cutaneous distempers, and to preserve sheep from the stroke of the fly. Farther—a considerable quantity of wool will be saved, which is torn off by sheep when rubbing themselves, in order to allay the irritation of the skin, occasioned by those causes. The ointment resists the action of the moisture more powerfully than could the natural yolk of the wool; and Mr. Bakewell gives an example of the superior warmness and dryness apparently enjoyed by greased sheep, on the mountain sides, where greased and ungreased browsed together.

The following is given as the Northumberland preparation: From 16 to 20 pounds butter are placed over the fire and melted; a gallon of tar is then added, and the mixture is stirred until the two substances are well incorporated, and form a soft, tenacious ointment. The care always necessary in the application of ointments to the sheep, is especially so in this case; for, says Mr. Bakewell, *if the ointment be merely rubbed on the wool, it collects on the top of the staple, attracts and mixes with the soil, and is rather injurious than beneficial to the fleece.* The staples of the fleece are to be divided with one hand, and the ointment applied to the skin with the finger of the other hand, by which means the ointment is softened by the warmth of the skin, and equally diffused throughout the fleece. The quantity required will in course vary with the size of the sheep, but generally, and in the lighter mode of greasing, one gallon of tar and 20 pounds of butter will be sufficient for forty or fifty sheep.—[Lawrence.]

An unfavorable change takes place on shorn wool, kept long in a very warm and dry temperature; the fibres become indurated, rigid and elastic, and acquire the properties of the hard wools. The greater the degree of warmth, the more speedily will the effect be produced. Wool which has been shorn three or four years, will not spin or fill so well as when kept only one year. A dry situation is necessary for the preservation of wool, which however at length loses its natural moisture, and becomes hard, like wool of limestone districts.—[Bakewell.]

Sheared sheep, turned into a newly mown pasture, their coats attract the short ends of grass left by the scythe, and remain sticking in the bottom of the fleece, until in the end they are rolled up with it. These, with any dried vegetable particles, such as hay seeds or chaff, falling from the rack into the coat of the sheep, occasion much extra trouble and expense in the manufacture of the wool, since, if left, they would be wrought into the substance of the cloth, whence they may be extracted by holes made, to be afterwards repaired at the fulling mill, or by the fine drawer. Hay in racks should be upon the level with the heads of the sheep, and the staves by no means too wide apart, since some sheep, particularly the Spanish, are the most wasteful animals in the world of their provisions.—[Luccock.]

The wool grower is counselled to place no dependence upon accidental and external circumstances, for the production of good fleeces, but to rely entirely and with confidence upon the properties with which nature has endowed his sheep, the perpetuity of animal properties being scarcely any where more strikingly exhibited, than in the certainty and regularity with which the parent sheep convey to their offspring their own distinguished characteristics. Breed is of the utmost consequence. It is the basis upon which all the improvements of the flock must be founded; the only source of hope, that attempts to produce fine wool will be followed with success. The kind of wool depends entirely on the species of sheep which bears it; and the soil and its products, or other external circumstances, have no other effect than to vary the quality of the sample, the wool itself still remaining true to its species, long, short, or mixed. Long and universal experience has established the fitness of heavy, coarse woolled sheep for rich grazing grounds and marshes, confining the light and short woolled stock to the hills and higher pastures. Nevertheless, fitness and propriety, not absolute necessity, have given birth to such arrangement; since short and fine wool might be grown in the low grounds, and long wool in the upper, with an additional expense of winter keeping.—[Lawrence.]

[From the Genesee Farmer.]

ON DRAUGHT. No. II.—In my last number, I alluded to *power*, in the abstract, and made some suggestions in relation to the difference between animal and mechanical power. Leaving the subject of mechanical power, as I then proposed, I shall now proceed to consider the *application of animal power*; and in so doing, shall have reference principally to the power and use of the horse, whose services are in constant requisition, and whose powers are familiar to us all.

The application of the power of a horse, in the ordinary occupations of life, would seem to be a very simple matter, as it really is, and hardly worth a minute investigation; and yet we shall find, as we progress, that the result of every animal effort must depend upon a vast variety of principles and circumstances, connected with the exertion made.

Upon the *structure* of the animal, much may depend, as I had occasion to notice when treating upon the Horse in vol. ii. Every animal is a beautiful piece of mechanism, made up of exquisitely fine wrought pullies and levers, which are forced into vigorous action at every exertion of power. A horse, from the very nature of his formation, is peculiarly calculated for *draught*. To exemplify this, let us consider for a moment the difference in applying the power of a man and a horse. The process of dragging is produced by throwing the body forward, and making its weight available as well as its strength, thus making the feet the fulcrum of a lever, and the weight and strength the effective power. The centre of gravity in both animals is about the centre of the body, to wit, just behind the shoulders in the horse, and just below the arms in the man. Now, supposing the weight and strength of both animals to be the same, the fact, that the hind legs of the horse must be considered the fulcrum, necessarily throws the centre of gravity much further forward in the horse, than it could possibly be done by the man. Consequently, the effect produced must be in proportion to the weight of the body and the distance the weight is applied beyond the fulcrum. This is constantly the case in practice. The muscular strength of a man is nearly as great as that of a horse, but from his upright construction, he cannot apply it in the same way. He can carry a great weight up a ladder, if applied to his shoulders, and yet in the act of pulling, his power is lost, for the want of weight, and its proper application. The horse too, in ascending a steep hill, can produce very little effect, because in that case his whole muscular strength must be exerted against his own gravity and that of the load; while on a horizontal surface, he is enabled to take advantage of his great weight, as well as muscular powers.

Now, although the weight of a horse may remain the same, and be applied under most circumstances with the same effect, not so with the muscles. A constant strain upon them will soon destroy their power of action, and render the animal useless. We are all aware of this from experience,—thus we feel more fatigue by standing than by walking, because one particular set of muscles is then kept constantly exerted. We must therefore vary the resistance, so as to suit the power and gait of the animal. But in varying the resistance, it cannot be elastic or yielding, except at the expense of power; for in that case, if too much power should be applied, the horse would naturally fall forward, and thereby lose his exertion; and if the power should be insufficient, he

would be drawn back by the strain, and it would require a greater effort to restore the motion. This is constantly exemplified in towing canal boats, and in the lead horses of stage coach teams. In the former case, the length and curve of the rope give an elasticity to the strain; and the necessity of keeping the rope out of the water compels the animal to keep up an unremitted pull in an oblique direction. So in harnessing horses one before another, the leader by tightening the traces is constantly relieving the strain from the wheel horse, and the wheel horse from the leader, so that these horses labor under all the disadvantages of a long, elastic, and constantly yielding load, which is not only fatiguing, but prevents their united exertion upon the carriage. A horse therefore, to work to advantage, must have a rigid resistance, but neither uniform, nor without remission. Hence we readily perceive, why a horse works easier on an undulating road than upon a perfectly level one, and also why he will draw more, when attached directly to his load, than when at a distance.

The *effect* gained by the action of a horse, or in other words his *productive muscular power*, must depend upon his *rate of speed*, the *power of traction he can exert*, and the *number of hours he can work*. As these are important considerations, connected with the *application of animal power*, it is desirable to examine them more in detail, and with that view, I shall avail myself, as heretofore, of the statements and calculations of Mr. Tredgold and others.

Neither the speed or power of a horse can be of any avail, unless some useful effect is produced, over and above mere velocity. Now, the *limit* of *speed* in any horse is the distance he can accomplish in a given time, for several days in succession, without weight; and the limit of his power, is when the weight can scarcely be moved. The medium point between these two limits is evidently the one most advantageous for the application of his power. This medium is said to be half the extreme or limit of velocity of a horse working unloaded; and the force of traction, half the limit of his power. For instance, if six hours be the length of a day's work decided upon, and if a horse working that time can go six miles per hour unloaded, and therefore producing no useful effect, and supposing the limit of power of the same horse equal to 250 lbs., it is found that he will do the most work in the same number of hours, when drawing a load at the rate of half six, or three miles per hour; and half of 250 lbs. or 125 lbs., will be the strain corresponding to this speed. As the *limit* of *velocity* depends upon the time the speed is kept up, the following table, drawn from experiments, will show the proportion of duration of labor, and maximum of velocity, of the average of horses:

Duration of labor in hours.	Velocity in miles per hour unloaded.
1	14¾
2	10½
3	8½
4	7½
5	6¾
6	6
7	5½
8	5¼
10	4¾

This evidently shows the advantage of reducing the speed, and prolonging the exertion. It will here also be seen, that the velocity of horses, corresponding to eight hours' work, is five miles and a quarter per hour; and consequently the rate at which he would travel when loaded is but little more than two miles and an half per hour. But Mr. Tredgold estimates, from long experience, the time in which the average of horses can accomplish most work without injury to themselves, to be only six hours per day, instead of eight, which will of course increase his average velocity when loaded, to three miles per hour.

But we cannot always control the velocity and time of duration, as here supposed, for our stage coaches, and other conveyances for passengers, have reference only to speed, and the great object of proprietors is to obtain it with the greatest economy. Mr. Tredgold has given a table which shows at once the reduction of effect by increasing the velocity. A force of traction of 125 lbs. continued for six hours at the rate of three miles per hour, is taken as the standard, and considered equal to the arbitrary number, 1,000. The first column will show the velocity or rate per hour, continued for six hours per day; the second represents the force of traction of which the animal is capable; and the third, the comparative effects produced.

Miles per hour.	Force of traction in lbs.	Effect produced.
2	166	888
3	125	1,000
3½	104	972
4	83	888
4½	62½	750
5	41⅔	555
5½	36¼	500

If, however, the hours of labor be lessened, taking the velocity corresponding to the greatest useful effect, the results will be much greater, and the velocity may be raised much higher, as will be seen in the following table.

Here the first column is the length of day's work, the second the velocity corresponding to that time, or half the limit of velocity shown in table first, and the third column the comparative effect produced, the force of traction being in each case 125 lbs.

Duration of labor in hours.	Velocity—miles per hour.	Effect produced.
2	5¼	578
3	4½	709
4	3⅞	813
5	3½	909
6	3	1,000
7	2¾	1,063
8	2⅝	1,110

To attain higher velocity, it is necessary still further to reduce the load, and the following table is calculated upon the supposition of the strain being only one half the last, viz. 62½ lbs.; this is about the average exertion of each horse in a four horse heavy stage coach.

Duration of labor—hours per day.	Velocity.	Effect produced.
4	5¼	613
3	6 2-5	534
2	7 4-5	434
1	11	307

In mail or light coaches, where ten, eleven, or twelve miles an hour is attained, the average strain of each horse is barely 40 lbs., and the effect produced, not much more than one half the above, or 160.

These tables are calculated upon the supposition that the roads are good and the resistance small, and therefore allowance must always be made when roads are uneven, for increased resistance, and a corresponding expense of power. It will be observed, too, that in rapid travelling the power is much more expensive, owing to the great loss sustained by increased velocity; and the bad consequences of a uniform strain are more severely felt by the horses, and therefore occasional relief much more urgent.

From all that has here been stated, it will readily be seen how important it is to all persons engaged in transporting property to understand fully the principles which regulate the increase or diminution of *effect* produced by their teams, and no persons have a greater interest in this subject than farmers. Their great object, with others, is to obtain the greatest amount of effect, with the least expense, and with the least expenditure of power. Let every man then, investigate this subject for himself, that he may know when and how he is obtaining the greatest possible effect, from the expense and power applied. QUERCUS.

No. III.

In farther pursuing our inquiries relative to the *application* of animal power, the *modus operandi*, or the manner of attaching the power to the weight, forms an important consideration. We have seen that the structure of the animal, his muscular power, speed and bottom, and the quality and degree of resistance, all have more or less influence upon the *effect* produced; and we shall now find that the mode of harnessing a horse, and attaching him to his load, also has an influence upon his productive labor.

If we could always use our draught horses upon railways, where the resistance is so slight, and its quality exactly what it should be, it would be a matter of little importance, in ordinary cases, how we connected them with their loads; but while we have to encounter every variety of resistance, up hill and down, over rough roads and smooth, it is important to avail ourselves of every circumstance, however trifling, which may increase our products without injury to our animals, or expense to ourselves.

In ancient times the harnessing a horse was a very simple matter. A strap around the neck, or a band around the girth, with a connecting rope or leather, was all that was thought necessary; and even [illegible]ore modern times, every nation has a mode peculiar to itself, though all depend upon one and the same principle for effect.

But whatever may be our preferences, or however many our expedients, to decorate our animals, or modify their labor, the effect they produce will always depend in some measure upon the arrangement of the traces.

The angle of inclination, or in other words, the direction of the traces from the shoulder to the load, has been a topic of much discussion. There are but three modes of directing the traces: horizontally from the shoulder to the load—an upward inclination from the same point—and a downward inclination. These have all had their advocates; but so far as I can judge, the *force of traction* is not altered in either case. If the trace inclines upward from the shoulder, then a portion of the animal's weight is borne by the trace, and of course communicated to the carriage; and if the trace is inclined downward, the effect is, that the horse lifts, as it were, a part of the load; while in both cases, the force of traction is the same as that exerted upon a horizontal trace. In the first case, the *effect* is increased by the weight of the animal; in the latter, by his muscular strength, or capability of sustaining weight. The advantage or disadvantage, then, of either of these modes of application, must depend upon something else than mere *force of traction*.

But *there is*, nevertheless, advantages to be gained in the use of these several modes. It is evident, from the very construction of different horses, that their *capabilities* are essentially different, though their force of traction may be the same. One may be a small, muscular, nervous animal, exerting

an average force of traction of 125 lbs.; another, with large muscular legs, is perhaps calculated to sustain a great weight; while a third may possess an unwieldy bulk of flesh and bone, which of itself is a load, and yet neither of the latter horses be able to exert a greater force of traction than the former. In the first case, comparing one animal with the other, nothing would be gained by deviating the traces from a horizontal direction. In the second, an evident advantage would be gained by inclining the traces downward, for then the effect would be increased by putting a part of the load *upon* the horse, thereby leaving less weight to be operated upon by his force of traction. And in the last case, a corresponding advantage would be obtained by inclining the traces upward, so as to take the benefit of the animal's weight in addition to his strength. Hence it is evident, that so far as the animal is concerned, the inclination of the traces ought to depend upon his particular capability, and not upon any general rule.

But, independent of the animal, there is another consideration which should influence the inclination of the traces. In the above cases, I have supposed the weight to be moved upon a smooth surface; but it is evident, where the road is rough and the resistance constantly varying, a great advantage may be gained by enabling the horse to lift a part of his load over the obstacles; which will be effected by inclining the traces downward, let the animal's capabilities be what they may. On most of our roads, however, there is a constant variation from smooth to rough, from ascent to descent; and it will, therefore, be desirable for every man to fix upon that inclination which on the whole will best suit his circumstances; for it would be impossible to change the direction of the trace at every change of surface. Hence we find how much more effect wheel horses are enabled to produce upon our common roads, than leaders; for the latter can never apply their strength except in a horizontal direction; while the former exert the same force of traction, and at the same time increase the effect, by their nearness to the load, and relieving the weight. Hence, too, it is evident, that upon ordinary roads, the mode of harnessing horses one before another, as in our stage teams, is not the most efficacious mode of applying their powers. The plan adopted by the New-Jersey and Pennsylvania teamsters, of harnessing four horses abreast, and directly to the carriage, is doubtless the most efficient, if not the most convenient.

The common use of the gig, or dray cart, is another exemplification of this principle. The weight thrown upon the shafts is the same thing as weight applied to the traces by a downward inclination; and it is well known to practical men, that most horses will carry the same load easier in this way, if correctly divided, than where the whole depends upon the animal's force of traction.

The fitting of the trace to the collar is another point worthy of remark. The structure of the horse, however, determines this matter almost wholly; and generally, in this country, it is judiciously applied. The connecting point between the collar and the trace should be about two-thirds of the distance from the top of the collar to its lowest extremity, for there the collar bone is smallest, and the most muscle is presented to sustain the pressure. The old fashioned New-England mode of applying a connected trace around the breast, and sustained by a strap over the neck, was exceedingly irksome to the horse, as the whole strain passed directly over the joint of the collar bone, and thereby nearly paralized the operation of that joint.

In general, then, where the road is smooth and the gait slow, the traces should be as nearly horizontal as possible; unless where an extraordinary exertion is required, and then the traces should be a little inclined downward, so as to put a small part of the weight upon the horse. When the road is rough, and the gait also slow, the traces should be applied still lower down, so as to give the horse the greatest power over obstacles. But where great velocity is required, without much attending weight, the nearer the traces can be brought to horizontal the better, for then the horse is enabled to exert his force of traction without any counteracting influence.

In my next number, I shall proceed to consider, in part, the second branch of this subject, to wit, the *vehicles to be moved*, in connection with the *channels of conveyance*, but with especial reference to Canals and Canal boats. QUERCUS.

[From the London Mechanics' Magazine, for December, 1834.]

Axle-trees and Axle-friction.

SIR,—Since the period of the discussion, in your pages, on the subject of steam and other carriages, caused by my strictures on the Foreign Quarterly Review, my attention has been much directed to the subject of axles and axle friction, which, taken in all its varieties, is a matter of more importance to the community than almost any other question in mechanics. It is a question of the economical consumption of *power*, extending through almost every branch of mechanical art, and as a question of national economy, it is important that it should be thoroughly understood, not merely by theoretic writers, but by all mechanical workmen, and their employers.

There are many good workmen who have exceeding crude notions on the subject of friction. Some believe that it may be done away with altogether; others who do not go that length, think it highly important to diminish all bearing surfaces to the utmost practicable extent. These people are great advocates for making upright shafts rest on sharp conical points, instead of semi-circular balls working in cup sockets. Nay, I have heard one of them gravely argue, that for an horizontal axle, a three-square case-hardened bar, working in a hollow hardened cylinder, was better than all others. Why? because there was less surface friction! It was impossible to make him understand that the whole of the friction being thrown on a point, instead of a broad surface, could not in any way diminish its total amount, and that, as a practical matter, the abrasion of surface must be greatly increased.

If two metallic surfaces be brought in contact, and motion be kept up with sufficient force and velocity, heat will be elicited, and the metal will increase in bulk. The harder and the less porous the metal may be the greater will be the motion required to produce the effect, but abrasion of the surfaces will at last take place, and the metals will have a tendency to unite or weld together, as in the case of an axle and box "sticking fast." If oil be introduced between the two surfaces, the abrasion of the metal will not take place. The metallic surfaces are fixed bodies, the particles of the oil are rolling bodies. The movement becomes easier, and the diminution of resistance is called the diminution of friction. But the friction has not ceased to exist. It is merely that the greater portion of it is transferred from one body to another, from the surface of the metal to the surface of the globules of oil; what the metal saves the oil loses. The advantage consists in preserving an expensive material, such as an axle arm surface, and consuming a cheaper material, such as oil, which can easily be renewed. This fact furnishes a rule for the *size* of axle arms, independently of the strength of materials which may be required. The surface bearing must be so proportioned to the superincumbent weight, that the flow of oil between the lower side of the axle and its box may never be interrupted. If the arm be too small, the oil, which is a series of rolling bodies, will all be squeezed out by the superincumbent weight, the metallic surfaces will be brought in contact, and abrasion will ensue. If, on the contrary, the axle arm be too large, unnecessary friction will be caused, as well as superfluous weight. But, of course, the axles of steam engines and mills require much less proportional strength than those of wheel carriages and locomotive machines. Where momentum is added to weight, the surface bearing must be considerably increased, or the flow of oil between the axle and box will be checked, if not altogether stopped.

As it is clear that a free flow of oil is necessary between the surfaces, it is clear also that the flow of oil should as far as possible be rendered constant. In the case of a lathe mandril, the waste of oil is comparatively of little importance, consequently the best mode is to have a funnel-shaped column of oil pressing downwards on the working part, and freely passing off on either side the bearing. Oil, which is confined between two moving metallic surfaces, becomes thickened like tar. A lamp which is fed by a stream of oil constantly pumped through the wick, gives a more brilliant light than the ordinary kind of capillary lamps; the better portions of the oil are alone consumed, and a similar effect is produced by a stream of oil on an axle. In wheel carriages and locomotive machines, whose wheels are fixtures on the axles, this contrivance can be resorted to, but, of course, the consumption of oil must in such cases be considerable. In wheel carriages whose wheels are moveable on their axis, there would be considerable difficulty in thus feeding the arms with oil; and in carriages which require neatness, the dirt and filth would be a great objection. Therefore, the desideratum is, to carry the greatest quantity of oil with the least possible waste, and without making the wheel centre unsightly in its exterior form. Oil, wherever it can be used, is the best of all lu-

bricating substances for metal, because it is the most fluid, that is, the rolling particles pass each other with the greatest facility.

The earliest axles for wheel carriages were made of wood, and of a conical form, for two reasons: first, that it is easiest to fit a nave or box on a conical arm than on one of a cylindrical form; and secondly, in case of wear, the arm may be refitted by the wheel being worked farther up. The same form was continued, for the same reasons, when iron axles were introduced. Since that period, innumerable inventors have tried their heads and hands at the improvement of axles, and scarce a year passes that several patents are not taken out to die a premature death.

The commonest metal axle used at present is of a conical form, with a broad flat ring or washer driven firmly up to the shoulder, against which the wheel-box works. The wheel is secured against coming off by a front washer, behind a strong linch-pin. A thick unctuous grease is used for lubrication, to contain which deep channels are sunk in the box.

The next kind, instead of a washer and strong linch-pin, is provided with a screw-nut, formed to screw on the axle-end, in the direction in which the wheel turns, to keep the wheel on. Through both nut and axle a small linch-pin is driven. Some of these nuts are four-sided, others six and eight sided, and are consequently pierced with two, three, or four mortices for the linch-pin, in order to regulate the play of the wheel.

The next kind is the mail axle, so called from having been first used in the mail coaches. This axle is provided with a solid flat collar at the shoulder, against which the box of the wheel works. This axle has neither front nut, washer, or linch-pin. The arm is cylindrical, and is cut off flat at the front end; the front end of the box is closely stopped with a plate or screw, between which and the end of the arm there is left a hollow space for the purpose of containing oil, which is supplied by loosening a screw-pin in the front of the box. At the back of the box, near the shoulder, there is a second reservoir for oil. The wheel is retained on the arm of the axle by three or four long bolts, which pass through the nave from front to back, and thence through a circular plate of thick iron as large as the nave, which works against the back of the solid collar. Between the solid collar and the axle-box a thick leathern washer is placed to prevent any jar arising. The play of the wheel is adjusted by screwing up the nuts of the long bolts against the circular plate. The advantage of this axle is the security it affords against the wheel coming off, by three or four separate bolts. But it is otherwise very imperfect, as the oil wastes very rapidly when the wheel is in work, and the end of the axle not being secured in front, there is an irregular elastic motion, which causes the arm to wear unequally at the shoulder after a short time, and then the oil disappears still more rapidly. The mail axles are most commonly hardened, both arm and box, to guard against this; but it is of little avail. Mail axles are supposed to be lubricated with oil; but the fact is, that unless they be oiled every three or four days, they are actually lubricated with water. The process is thus: The front reservoir is level with the bottom of the axle arm, and consequently is level with the drainage or leakage point at the leathern washer. When the wheel is in motion it acts as a pump, and in a very short time drains off the oil of the front reservoir into the back, till it overflows; consequently the front is left dry. The bottom of the back reservoir is about an inch below the leakage point, and therefore it does not lose its oil by the same process as the front; but it loses it nevertheless. In the process of washing the wheel, and also in rainy weather, water gets in between the washer and the box. Water being heavier than oil, sinks to the bottom of the reservoir, and the oil flows off. Thus it is, that almost every mail axle which is not oiled every few days, gets rusty and spoiled. While the oil lasts, of course, the friction is less than that of a common axle; and, as before remarked, the security is greater against the wheel coming off, but take it altogether, it is, though a neat looking, a very imperfect axle.

The next kind of axle, and the best which has been hitherto invented as applicable to ordinary wheels, is that known under the name of "Collinge's Patent." The original specification was, I believe, "a cylinder secured between two cones." But an axle on such a principle would not run smoothly; it would jar violently in the end play against the shoulder cone, and consequently the axles are never made so. The collar at the shoulder, against which the face of the wheel-box runs, is made very broad, flat, firm, and solid, and is, moreover, provided with an external rim or guard, which covers the end of the box, and excludes dirt and water. Close to the face of the box there is a reservoir of oil, and between the box and the collar there is a washer of solid leather. The centre of the arm is slightly turned down in the lathe, below the surface, to afford a lodgement for oil. The front of the arm beyond the box is turned down about a quarter of an inch, and a flat side filed on it. Upon this a small collar of gun-metal slides, the outer side of which projects in a conical form against the front end of the box, which is formed into a similar shape to receive it. Through this gun-metal collar a small hole is pierced to allow the passage of oil. It is thus evident, that when the wheel is in motion, owing to the flat side, the coned collar has no lateral motion, though it can slide along the arm, and regulate the play of the wheel. This collar is turned in the lathe when fixed on the arm, consequently it must fit accurately the end of the box, which is ground on to the arm. To adjust this collar to its place, and keep it firm there, two nuts of gun-metal, with right and left hand threads, one of smaller size than the other, are affixed. In adjusting, the first nut is screwed to the proper place, and then the second is screwed tight against it, one nut wedging the other. As a further security, a spring linch-pin is driven into the end of the arm beyond the nuts. Over the whole a large cap of gun-metal is screwed against the end of the box, with a washer of thin leather. This cap contains oil in its lower circumference, reaching to the horizontal level of the leakage point at the shoulder. The cap may be entirely filled, if it be wished, but it is useless, because the action of the wheel in turning would pump it away and waste it very rapidly. If it be wished to increase the quantity of the oil, the proper plan is to increase the circumference of the cap. The mode of feeding the axle is by the two reservoirs turning with the wheel, and the oil thus *washing up; and this is the only principle upon which locomotive axles can be fed with oil without wasting it.* Properly supplied with oil, a set of Collinge's axles, as they are at present made, will run about 5000 miles without sticking fast. The wheel is 5 feet 6 inches in diameter, which is about the height of the fore wheels of a full sized carriage weighing about a ton. The hind wheels would, of course, run farther with the same quantity of oil. As the arms of the axles are not horizontal, but dip downwards, the bearing is principally against the shoulder, and there is consequently little strain on the nuts; and the cap, also, in this position, holds more oil. But the friction must be increased. A horizontal arm runs with much less friction than a dipping one, because the dip serves to remove a part of the weight from the hardened arm against the softer washer. With the exception of those used in railway and steam vehicles, axles are all but universally dipped, or inclined downwards at the arms. There are sundry reasons for this. First, the extra security against the wheels coming off. Secondly, the greater facility of retaining the oil; and, thirdly, the facility it gives for using dished wheels. The advantages of the dished wheels are, that while keeping the same track on the ground, the length of the axle is not increased, and greater space is afforded for the body of the vehicle; and, at the same time, the dished form is stronger than the plane. When rightly adjusted, the under spokes should be in a line exactly vertical to the base, and the upper ones form the angle. The strongest form of wheel is that in which the spokes are framed angle-wise to the nave, alternating both ways, to form a double cone, but this materially increases the length of the axle arm, and renders the nave unsightly.

The disadvantages attending "Collinge's Patent Axle," are, considerable extra weight, owing to the thickness of the box, which is usually made of cast iron. The length of the arm is also increased by reason of the collar, double nuts, and cap; and, altogether, a nave

larger than ordinary is required for its insertion. But the advantages are so great, that whoever uses a vehicle with common wheels, travelling at the rate of five miles or more per hour, must be ignorant of the science of profit and loss, if he does not use them. The mere labor of keeping other axles properly greased or oiled, and the risk of abrasion from neglect, together with the waste of oil and grease, and extra risk of coming off, will make a heavy balance against the comparative cheapness in the first cost of the common axles. The axles which I have examined bearing the name of "Charles Collinge, Lambeth," are for the most part as well made as the best engineers' work usually is; in short, they are as accurately finished as is necessary for any practical purpose. The only thing objectionable in them to the general purchaser, is their high price; but for a man who keeps a pleasure carriage, and is not a judge of workmanship, the wisest course is to pay that high price, and place it to the account of what Mr. Babbage has so well termed *verification*. Twenty-five guineas is the price, I believe, but they may be had of other makers for two-thirds of that price, some of them equally well made with those marked Charles Collinge, and some of them the merest rubbish. Without good workmanship, this axle is worse than a common one. The well-made ones are formed of thin bar-iron, welded by hand into a mass (fagotted), and case-hardened, both arms and boxes. After hardening, the boxes are ground on to the arms with oil and emery, consequently they cannot be perfectly true cylinders, though intended to be so. Birmingham made axles have of late, on account of their cheapness, come much in use; but unless coming from a known maker, they are not to be trusted, as, to save expense, they are commonly made from square rolled bars, good or bad, subject to flaws, sand-cracks, and cold shorts. For self-axles, *i. e.* axles which are bolted to two springs at the ends, and have no other bearing, as is the case with the street cabs and gigs generally, a good method would be to make the centre or bed of the axle of drawn or rolled tube; weight might be thus saved without loss of strength, and tolerable security would be taken for the goodness of the metal.

The axle patented by Mr. Birch, and described in No. 589,* I consider to be a very imperfect one. The mode of fastening the wheel on by means of a single nut and linch-pin, is not comparable to the double nut and collar of "Collinge's Patent." Collinge's nuts, when screwed tight, become nearly as solid on the arm as though they were welded there. They are, in fact, two circular wedges, forcibly levered one against the other, without jamming the box. Mr. Birch's nut, on the contrary, cannot be made firmer without jamming the wheel fast. All screws are, in fact, circular wedges. No wedge acts firmly unless it bears on two sides. Mr. Birch's nut only bears on one side, and is kept from sliding or turning by the linch-pin; consequently it must rattle when the wheel is in motion over a rough road. The plan of coning the front of the nut against the box is not a good one, because the accuracy of the fitting depends on the accuracy of the male and female screws. To cut these threads so true as to ensure the cone working true in turning round, would require time, tools, and workmen, far too expensive for an axletree maker's use. The front cap is precisely the same as Collinge's; the remaining difference is the introduction of the two cylindric barrels, or false boxes, between the arm and the true box.

One solitary advantage alone can attend this. If any grit or particles of silex, harder than the hardened metal, chances to get between the arm and box, it cuts the surfaces, and acts as a key, causing the box to "stick fast." If Mr. Birch's arm were in this predicament, the wheel would not stick fast, because the two false boxes would revolve within the true one, unless the silex extend to their surfaces also. Against this advantage are to be set the disadvantages of a very considerable increase in the weight and size of the outer box, as well as the nave of the wheel. The inner boxes or barrels cannot be less than one fourth of an inch in thickness, making a total of one half. The difference between the outer box of Birch and that of Collinge must be as the area of a circle of three inches is to three inches and a half, or, probably nearer the truth, three inches and three fourths. Then follows the expense of manufacture. It must be exceedingly nice work to adjust the barrels, which are ground to an accurate fit, inside and out; and if not, the jarring must be intolerable. It has not been stated what the materials are.

All that is offered in testimony of the excellence of Mr. Birch's axle is mere verbiage.

"One wheel of Mr. Birch's gig being once oiled was never again disturbed until worn out."

All very possible; but will Mr. Birch be good enough to inform us, how long it took to wear it out; or, in other words, how many miles the gig run, and at what rate?

"The other wheel had the cap taken from it, and ran 600 miles."

Very possibly, also; but what does it prove? It might be done with one of Collinge's as easily as Birch's, for aught that there is in the construction. Nothing is said of the rate of travelling.

"The arm was cleaned and polished, and put together without any oil; when in this state the wheel ran sixty miles without sticking fast."

Mr. Birch does not say how long it took to run the sixty miles, nor any thing of the condition of the axle at the end of the journey. Travel slow enough, and any common axle will run sixty miles without stopping, and without oil if sufficiently large, and not loaded, and the radius of the wheel be not too small.

"Sir John Conroy found the axles answer exceedingly well in the carriages of her Royal Highness the Duchess of Kent."

Who is Sir John Conroy, that faith should be given to his quoted opinion? Has he acquired any name of repute as a man of science or a mechanic? The coachman himself would have been as good authority, after drinking a bottle of *Birch* wine. Court success depends on many more considerations than mere excellence and desert.

"John Ramsbottom, Esq., M. P., had a cabriolet with one of these axles, which was oiled on the 9th of November, 1831, and not touched till the 23d of May, 1833, when it was found quite full of oil."

What, Mr. Birch, quite full, quite? No loss by friction—none whatever? Pray, how many miles had it run? Verily, Mr. Ramsbottom must be either a man of sound faith or careless habits, if he used his cabriolet much. But more yet.

"It was again fitted with the same oil, and the cabriolet continued in use until 12th May, 1834, when the axletree and wheel were examined in the presence of Dr. Birkbeck and Mr. Charles Toplis."

Dr. Birkbeck, it seems, did nothing, unless, perhaps, to exclaim, "prodigious!" Mr. Toplis gives a certificate that the axle was in good condition; but, I confess, I see nothing more satisfactory in the certificate, than in one of Dr. Morison's regarding his pills. A certificate, to be worth any thing, must be one given after due examination, and careful guarding against the possibility of mistake. Had the cabriolet been laid up in ordinary the whole or any part of the "above two years and a half?" An axle might be filled with oil and left quiet, and thus retain for two centuries as easily as two years. If Mr. Birch wishes really to test his axle, he should apply it to a stage coach, known to run certain distances every day; oil it, and put a Chubb detector-lock on it, the key to be left with a known public man of mechanical skill. Such a trial might be taken for something, for the number of revolutions of the box around the arm might be calculated from the size of the wheel. In the work done by an axle, the weight it bears, its size, the quantity and quality of oil it uses, the distance it runs, and the size of the wheel, must all be taken into the account.

One word more. Mr. Birch is styled "the eminent coachmaker." Now, if these words mean any thing more than a tasty painter, or an ingenious upholsterer—if they mean a scientific constructor of a wheel-carriage, will he be good enough to state the size of the wheels on Mr. Ramsbottom's cabriolet, and the thickness and breadth of the tire, as well as the quality of the iron? He can then inform us how far such wheels can run on an ordinary Macadamised road before wearing the tire off. This distance we can divide by the number of days which elapsed betwen the oilings, and thus ascertain the amount of Mr. Ramsbottom's

* See page 89, current volume.

travelling. Mr. Toplis does not state whether the wheels were in as good a condition as the boxes, or whether Mr. Birch puts new wheels on his boxes, or new tires on his wheels, without taking either off the axle-arm?

Seriously—Mr. Toplis, as director of a Public Museum, giving a certificate of public importance, is bound to satisfy the public as to the reason of these apparent discrepancies. There is far too much attempted to be proved in favor of mere earthly materials. Such powers are not to be found in simple oil and metal. As a Yankee would say, "I guess a ruby axle runnin' in a diamond gudgeon, and oiled with anti-friction gas, couldn't do more. It beats the north pole, with the aurora borealis for a pivot hole, all to smash. The leetle eend o' nothin' whittled down, and runnin' in a moonbeam, aint to be compared to it."

Let me be understood with regard to what I have said on the subject of Collinge's patent axles: though I consider them the best which have yet appeared, I think that the greatest possible excellence is still to be obtained.

I remain, sir, yours, &c.

JUNIUS REDIVIVUS.

November 27, 1834.

[From the Journal of the Franklin Institute.]

Description of certain Improvements in the Process of Tanning. Patented by EDWARD S. and DANIEL BELL, Smithfield, Jefferson county, Virginia, July 28th, 1834.

The objects of the improved modes of procedure for which this patent is obtained, are, First, The softening the hides, or skins, and the freeing them from grease. Secondly, Expanding the hides preparatory to their receiving the tan. Thirdly, The procuring the *tannin*, or tanning principle, from the ooze, pure, by filtering. Fourthly, Causing the tanning lixivium more readily to enter the hides, by the use of mechanical compression made upon them, under the surface of the ooze, and thereby shortening the operation.

The claims made are to the modes, and apparatus, adopted for the attainment of these ends. For softening the hides, twenty-one and a half pounds of caustic lime, unslaked, and levigated, and sixteen pounds of carbonate of potash, and one pound of carbonate of soda, are to be added to every two hundred cubic feet of water. In the alkaline liquor thus formed, the hides are to be suspended in the usual way, by which means they will be completely softened, and have their grease neutralized, in from twenty-four to thirty-six hours.

The expanding or raising of the hides is to be effected by adding to every hundred feet of pure gallic lixivium, one pound of tartaric and one pound of sulphuric acids; by suspending the hides in this solution, a complete expansion, it is said, will take place in six or eight hours.

To procure the tanning liquid pure, the ooze, after having been obtained from the bark, is to be filtered by putting it into a vessel of the nature of the common hopper for obtaining ley, the bottom and sides of which are to be covered with about eight inches of raw cotton, and filled in with fine refuse tan, or exhausted bark. Through this the pure tanning liquor is to be passed, and collected in a proper receptacle.

The most important part of the process, however, appears to be the following, namely, the subjecting the hides or skins to mechanical pressure under the surface of the ooze, or tanning liquor. The apparatus employed for the purpose is fully described, and well represented in the drawing. A platform is to be made, and placed upon firm supports, which platform may be suspended between two vats containing ooze, and in which the hides are suspended. The platform stands a few inches below the level of the ooze in the vats, which is admitted to flow over it, there being ledges which serve to retain it upon the platform. Upon this platform the hides are to be submitted to the requisite degree of pressure. The tanning liquid is to be kept, by means of heaters, at a temperature of 98° Fahrenheit. The hides are to be taken from the vats, and spread smoothly upon the platform, and then a kind of carriage, sustained upon two long rollers of wood, or brass, is made to pass over them, the carriage being loaded with such a weight as may be necessary for the skins to be operated upon. The guides, ways, friction rollers, pulleys, &c., which are employed in the moving of this carriage back and forth, we need not describe. The object of this pressure is to remove the watery particles from the pores, which are left there after the ooze has become exhausted by the combination of its tannin with the skin; the pores are thus closed, and the skin condensed, and in that state it is to be slipped again into the vat, without exposing it to the air, where, in the course of six or eight hours, it will again be expanded by the refilling of the pores with fresh ooze. This operation is to be repeated, employing a stronger tanning liquid after the first has produced all the effect expected from it; and thus, in succession, a stronger and stronger, until the process is completed, "which, for heavy leather, takes place in six or eight weeks, and for light skins, in from six to twelve days." To economize time and labor, there must be a series of such vats and platforms as have been described, thus enabling the workman to proceed readily from a weaker to a stronger solution, these varying according to the nature of the skins; and requiring to be regulated by the judgment of the workman.

[From the Genesee Farmer.]

ON THE PRESERVATION OF POSTS, SILLS, &c.—We have endeavored, on several occasions, to call the attention of our readers to the best means of preserving posts, sills, and other timbers, from decay. The *easiest method* is to fell the trees at the right time—not of the moon,* but of the year. If this be done, the value of the wood will be several times greater than if cut when the sap is rising in the spring. This is a fact well worth knowing and remembering; but it is not the only fact connected with this business, that ought to be known and remembered. In addition to the durability added in this way, we may add at least as much more by the judicious application of *salt* or *lime;* and for statements of their efficacy, we refer to pages 80, 105, 145, and 167, of our last volume.

These substances were applied to prevent the putrefactive fermentation; but the former (common salt) has also been used as a preventive against the *dry rot.* This, which has proved so remarkably destructive to timbers employed in both civil and naval architecture, is produced by several species of fungi, belonging also to the different genera, such as *Merulius lachrymans* and *Ditiola radicata;* and though we have heard no complaint on this subject in our section of the country, we presume that some extracts from a late article by WILLIAM PATTERSON, an eminent merchant of Baltimore, will be found interesting:

'I knew of a fine vessel built for a Charleston packet, with so much care, that she required no caulking or repairs for *four years,* at the end of that time, when she was carried into dock to be caulked, she was found to be so *totally destroyed by the dry rot,* as to be unworthy of repair, and was broken up.

"The year before the breaking out of the late war with Great Britain, I commenced building a fine vessel, and had her frame raised, her bends on, and bottom planked, when I determined to proceed no further. I erected a shed over the vessel, under which she remained *four years* before I concluded to finish her. All possible care was taken of her; yet some of the large pieces of timber were found defective, especially the transoms; timbers 18 inches square were found to be *entirely destroyed by the dry rot.* It was owing to this circumstance that I resorted to the plan of *boring the large timbers* and *filling the holes with salt.*

"I adopted the following plan with all the vessels that I have built within a period of more than sixty years: While building, when the bends and the bottom planks are on, and before delling, I have caused three sets of stoppers to be placed fore and aft between all the timbers, to keep *the salt* in its place. The *first* tier of stoppers are placed at the floor heads; the *second* immediately below the lower deck beams; and the *third* between decks, just above the air streak, common in all double decked vessels. Air streaks are left above the first and second tiers of stoppers, for the purpose of adding more salt as the previous supplies of that article settle or are dissolved. Just before finishing the ceiling of the vessel, *the salt is filled in among all the timbers,* from the lowest tier of stoppers to the upper deck—taking care that the salt

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* Some persons believe that the moon exerts a mighty influence on this *sublunary* sphere; and, as the tides of the ocean can be clearly traced to this cause, they conclude that its action is not less efficient on the plants and animals—forgetting that water in the sea is an inert mass, while the latter are endued with life, capable of *resisting* to a certain degree all exterior impulses. But the attraction of the moon is so small, as only to be perceptible on a great mass of water; and even our *capacious lakes* have no sensible tide. How, then, can we suppose that lunar influence can be felt in the *minute tubes* that convey the sap from the root? and more especially when these tubes are *subject* to the laws of organic life. When we are told, therefore, that timber cut in a certain phase of the moon is more durable than if cut a fortnight later or earlier, we are compelled to listen with diminished respect; and when an editor admits into his columns such notions unrebuked, we have to regret that the blind has been appointed to lead the way.

in the upper tier is well rammed down; *if wetted, so much the better.*

"In all my experience, *I have never found a defective timber* in vessels thus prepared, and thus taken care of; and I am persuaded that the *dry rot* may be entirely prevented, by adopting the above precautions. As a proof of the good effects of the above mode, I will add, that I have two vessels now running which are perfectly sound and trustworthy; one of them is *thirty-one years old*, and the other *twenty-five*; and the only repairs that have been given to their hulls, were the renewal of the waist planks of both, and the quarter deck of one of them. This was not owing to the decay of the plank, but to the circumstance of its being fastened with iron: the corrosion of the iron caused openings where it passed through the wood."

[From the Register of Rural Improvements.]

On the History and Cultivation of the Viola tricolor, Pansy violet, or Heart's-ease.

"The daughters of the flood have search'd the mead
For violets pale, and cropped the poppy's head;
Pansies to please the sight, and cassia sweet to smell."—[Dryden.]

The cultivation of flowers has been the care of the tasteful, in every age and in every climate. While it affords an innocent and interesting occupation for the young, the gay, and the happy, it may be resorted to with the greatest advantage, as a solace under the perplexities and troubles of life.

In the warm and balmy breezes which are wafted over the plains of Persia, and the still farther East, the youths and maidens of those climes, assisted by their poets, invented a language of flowers, expressive of every emotion of the heart, and spoke every shade of affection, from the first spark of passion to the brightest kindling of love. Our distinguished poet, Percival, has noticed this most beautifully in one of his poems:

"In eastern lands they talk in flowers,
And they tell in a garland their loves and cares;
Each blossom that blooms in their garden bowers
On its leaves a mystic language bears."

It would be delightful to wander long in Nature's garden of flowers; but the cultivator, perhaps, should never generalize until his labor is over, but should take special care of each individual plant as it comes under his hand, to be cherished by his care and skill. This, however, is a hard rule, and in a work of taste may, perhaps, be broken with forgiveness.

I ask the reader, if he has ever been delighted by a rose of Sharon, or stopped to gaze on a lily of the valley,—to view with me that little, delicate flower, the tricolored violet, which, by many English authors, is called the pansy, or heart's-ease. The history of this flower goes back to the days of fable; and, what is most extraordinary, it has never been lost sight of in the revolutions of taste and attachments, so common in respect to the productions of the flower-garden. Some florists trace the name and origin of this flower to Io, daughter of Midas, who, as the early poets say, was changed by Diana, the protector of chastity, to a violet, to hide her from Apollo, who had become enamored of this earth-born beauty. It is a lovely allegory; for this modest blossom, after many centuries have passed away, still retains the bashful timidity of the nymph, partially concealing itself in its own foliage and that of other neighboring shrubs and plants, and shrinking from the gaze of the Sun, in his vernal and autumnal search for his long-lost Io, the object of his love.

In the poetry of the Greeks, and in all their works of taste, upon natural scenery, they embroider their productions with some allusion to this lovely flower. In the Floral Games, of the Romans, the violet was the beau-ideal of Flora, as the prize consisted of a golden violet.

That great master, as well as lover of nature, the Bard of Avon, has mingled the perfume of this flower with the sweet and delicate thoughts of the fair Ophelia, who, in her morbid state of sensibility, when Reason was shaken on her throne by Grief, "turned every thing to prettyness." She had been well instructed in the language of flowers, and makes some beautiful discriminations between the different kinds of violets, even in that state of mind. One species, it seems, was "dedicate" to love, meaning the passion of youthful hearts; and the other, to that feeling of reverence and affection which the child entertains for a parent or benefactor:

"*Oph.* There's rosemary, that's for remembrance;
Pray you, love, remember; and there's pansies,
That's for thoughts.
Laer. A document in madness; thoughts and
Remembrance fitted.
Oph. There's fennel for you, and columbines;—
There's rue for you; and here's some for me;—
We may call it herb of grace o'Sunday;—
You may wear your rue with a difference.—
There's a daisy:—I would give you some
Violets; but they withered all when my father died."

The immortal Milton, who saw the worlds beyond us "with an angel's ken," and was familiar with every maze of science—who described with equal accuracy a constellation or a flower,—has also made some distinction in the violets:

"——Flowers were the couch,
Pansies, and violets, and asphodel,
And hyacinths, earth's freshest, softest lap."

The bard, who saw all things as Nature made them, has carpeted the bowers of Paradise with the richest and sweetest flowers, among which the violet is first named:

"Thus talking, hand in hand, alone they passed
On to their blissful bower; it was a place
Chosen by the sov'reign Planter, when he framed
All things to man's delightful use; the roof,
Of thickest covert, was interwoven shade,
Laurel and myrtle, and what higher grew
Of firm and fragrant leaf: on either side
Acanthus, and each odorous bushy shrub,
Fenced up the verdant wall: each beauteous flower,
Iris all hues, roses, and jessamine,
Reared high their flourished heads between, and wro't
Mosaic: underfoot the violet,
Crocus, and hyacinth, with rich inlay
Broidered the ground, more colored than with stone
Of costliest emblem."

The generic term, violet, is derived from the Romans, yet the tricolored violet has, perhaps, alone received the English names of pansy and heart's-ease. By modern florists, this beautiful flower is called the viola grandiflora, or the great-flowered pansy violet; and not unfrequently, of late, by way of great distinction, it has been called "the florist's flower." There are now, in the gardens in England, more than three hundred varieties of this plant, and the cultivators are every year repaid for their attention to this little gem of their love, by new varieties. Some beautiful ones have been exhibited in this country, the largest of which is the purpurea. It has been suggested, with much propriety, that this variety should be called unimaculata, as the petals are entirely purple, with the exception of the eye of the flower, which is small, and of a bright yellow. Other varieties, from tricolor to pure yellow, and from nearly black to white, are to be found in some collections in this vicinity.

This violet should have but one name, "heart's-ease;" for its cultivation delights the heart of the florist, if he has any love of nature in him. It blooms while "the coming frosts of latter autumn" have put most other plants in the garden to sleep for the winter; it remains, as if unwilling to leave the sight of man; and sometimes, in a moderate winter, it is seen, partially covered with snow, with buds ready formed to usher in "young spring." The appearance of this flower keeps alive the hopes of the cultivator, and as he turns his eye, for a moment, from his favorite violet, to look for the crocus, with its "cloth of gold," and the anemone hepatica, clothed in its white, pink, or blue mantle, he is led at once to exclaim, with a bosom heaving with joy, "summer is coming, cold winter awa'." In some climates the violet is perpetually in flower, and there it received the name of "forget-me-not."

It is a fact, as before remarked, that the violet has never suffered from the caprice of fashion. Ever since it sprang from the bosom of its mother earth, it has been the favorite of the cottage and the palace; children have plucked it with delight, and the most tasteful have watched it in all its progress, to its present high state of cultivation. In 1832, it was one of five flowers selected for show at the London Metropolitan Exhibition of Flowers, in honor of the Queen's birth-day; and it will never lose a particle of its attraction.

Perhaps those who are absorbed in politics, or governed by ambition, to whom nothing is sweet but the sounds of the comitia or the eloquence of the halls of legislation, would take but little pleasure in repeating with me the lines on the culture of this little flower, by that "simple-minded peasant-poet," Clare:

"Violets, sweet tenants of the shade,
In purple's richest pride arrayed,
Your errand here fulfil;
Go, bid the artist's simple strain
Your lustre imitate in vain,
And match your Maker's skill."

While I, bending over the first vernal violet that rears its head in my garden, shall join with Wordsworth in praise of his favorite flower, the celandine:

"Let, with bold, advent'rous skill,
Others thrid the polar sea;
Build a pyramid who will;
Praise it is enough for me,
If there be but three or four
Who will love my little flower."

This beautiful flower is a native of Siberia, Japan, and many parts of Europe. The infinity of provincial names which have been bestowed upon it, would alone be sufficient to prove it to be a general favorite. It has been called, in addition to the names already given, Love in Idleness, Live in Idleness, Call me to you, Three faces under a Hood, Herb Trinity, Flower of Jove, Ladies' Delight, Sparkler, Flamy, with many others.

The cultivation of this plant is very simple: it may be increased by dividing the roots in the spring or fall, and also by layers and pipings. To obtain new varieties, the seeds from the best sorts should be gathered as they become ripe, and sown directly. The plants will appear in about fourteen days: those of the spring sowing, will bloom in autumn, and the autumn plants in the spring; and if they are protected from the summer's sun, after ten o'clock, A. M., they will continue to bloom until the frost becomes severe.

The best sorts are the purpurea, alba, and Carter's Prince of Orange, the latter raised from seed, in 1832, by Mr. William Carter, at the Botanic Garden, Cambridge; to these add Perfection, Sir Walter Scott, Mary Queen of Scots, Luna, Admiral, and some other choice varieties, to be found in every good collection. S. WALKER.

Roxbury, December, 1834.